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ABSTRACT

The Massachusetts Workplace Education Initiative (MWEI) was begun in 1985 as an inter-agency effort to bring adult basic education and English-as-a-Second-Language (ESL) instruction directly into workplaces throughout the state. The impetus for the program was a concern for large numbers of workers who did not have the skills necessary to compete successfully for new jobs after plant closings or other layoffs. This report details what came to be known as the "outcome study" and the "curriculum study" of the MWEI Cycle 4 Evaluation, as well as the "termination study," which developed when one company closed and another stopped its education program midway through the outcome study. The overall evaluation goals were: (1) to develop a process for defining and measuring meaningful outcomes, and (2) to assess the organization, delivery, and effectiveness of educational materials and curricula in four workplace education programs. Information on the following six sites are described in the outcome and curriculum studies: Hampden Paper Company (Holyoke); Aerovox, Inc. (New Bedford); Kennedy Die Castings (Worcester); United Electric Controls Company (Watertown); South Cove Manor Nursing Home (Boston); and Boston City Hospital (Boston). In addition, case studies are reported for Friction Materials, Inc. (Lawrence) and Spir-it, Inc. (Wakefield) in the termination study. Recommendations are offered for future evaluation and technical assistance. Nearly half the document consists of outcome study case studies, which are appended; also appended are numerous questionnaires used in the study. Contains 10 references. (LB) Adjunct ERIC Clearinghouse on Literacy Education.

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Participatory Approaches to Evaluating Outcomes and Designing Curriculum in Workplace Education Programs

The Report of the 1991 Evaluation of the Massachusetts Workplace Education Initiative

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"Deep concern over America's declining economic role in the world might provide an opportunity to emphasize the centrality of education to national objectives. But this would require an end to the widespread reluctance on the part of firms to invest more substantially in training and to reorganize the workplace in ways that would promote continuous learning."

Made in America, Commission on Industrial Productivity, the Massachusetts Institute of Technology, Cambridge, MA, 1989.

"In today's workplaces, change is often unexpected, unavoidable and threatening...Working together as equals, unions and employers have been able to plan for change and reduce or eliminate its harmful effects. A worker education strategy that includes workplace literacy is frequently an important part of that agenda for change."

"Worker-Centered Learning: A Union Guide to Workplace Literacy", Anthony Sarmiento and Ann Kay, AFL-CIO Human Resources Development Institute. Washington, D.C.:1990.

"Changes in the economy imply that the need to know how to learn -- in other words, how to organize social and technological resources, to transform what is familiar into the mastered-- is a process that requires knowing how to identify the limits of one's own knowledge, how to ask germane questions, how to penetrate poor documentation, and how to identify sources of information."

Sue E. Berryman: "Education and the Economy: A Diagnostic Review and Implications for the Federal Role."

"Increased self-confidence seems to be the most important outcome of the workplace education program because it correlates with so much. If a person is self confident, he'll learn more, communicate better, and do better work."

Supervisor at the TJMAXX Distribution Center, Worcester, MA.

"Being in this program has improved every part of my life. Now I like to learn. You can't stop me! This means I'm doing better at work and I even read to my kids at night..."

Employee, the Belmont Home, Worcester, MA.

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Executive Summary

Introduction

In November of 1990, the Bureau of Adult Education in the Massachusetts Department of Education contracted with Evaluation Research, an independent consulting company, to conduct an evaluation of the fourth cycle of operation of the Massachusetts Workplace Education Initiative (MWEI). The broad goals of the MWEI Cycle 4 evaluation were:

1. to develop a process for defining and measuring meaningful "outcomes" in eight workplace education programs, a process which would become the basis for an ongoing, customized evaluation system in each program;

2. to review the organization and delivery of educational materials and curricula in four workplace education programs and to assess the overall effectiveness of these materials and curricula.

This report describes the rationale for, and the methods and results of what came to be known as the "outcome study" and the "curriculum study" of the MWEI Cycle 4 Evaluation. Midway through the outcome study, one company closed down and another stopped its education program. As a result, a "termination study" became the third part of the MWEI Cycle 4 Evaluation.

Background of this Evaluation

The Massachusetts Workplace Education Initiative was begun in 1985 as an inter-agency effort to bring adult basic education and English as a Second Language (ESL) instruction directly into workplaces throughout the state. State policy makers had at that time become concerned about the large numbers of workers who did not have the basic skills to apply successfully for new jobs after plant closings and other lay-offs. This concern led the former Office of Training and Employment Policy in the Executive Office of Economic Affairs, the Bureau of Adult Education in the Department of Education, the Executive Office of Labor and, later, the Commonwealth Literacy Campaign to form a partnership to upgrade workers' skills before they lost their jobs. It was felt that a more-skilled workforce would strengthen business, enhance competitiveness in a harsh economy, and save jobs. Using state and federal funds, the MWEI partnership has provided state (and, in some cases, federal) funding and technical assistance to create local workplace basic skills education programs around the state. Since the mid-1980s, the MWEI partnership has commissioned a series of evaluations which document the varied workplace education service delivery models being developed.

The Outcome Study

Goals:

Building on the findings of prior evaluations, the MWEI in Cycle 4 asked the evaluators to develop a process which workplace education programs can use to assess their outcomes in terms that are more specifically relevant to employers', unions', and learners' goals. This process was designed so that any workplace program could adapt it to its own evaluation needs and resources and develop its own ongoing, customized evaluation system. Thus, this was not a traditional "outcome study" conducted by outsiders but rather an effort combining organizational development and outcome evaluation activities.

The goals of the outcome study were to:

1. Build the capacities of individual programs to conduct outcome evaluations.
2. More clearly define desired outcomes for each site and produce data which demonstrate what in fact is being achieved.
3. Develop a "tool kit" (an evaluation planning process, data gathering instruments, and resource persons) which other programs can use to develop their own planning and evaluation systems.

The ten-step process used in the six sites:

In each of the participating programs, the consultants established "evaluation teams" which were made up of representatives from all areas of the program partnership -- upper-level managers, supervisors, plant managers, human resource development officers, workers enrolled in the program, union representatives, and programs coordinators and teachers. Over the course of the year, following a ten step process, the evaluation team members identified the outcomes they believe to be important to their programs and companies; designed instruments to best measure whether these outcomes were in fact being achieved; collected, analyzed, and reported the data; and also evaluated the process which they had employed to measure their outcomes -- in the service of improving that process next year.

The following is a description of the ten-step process which was employed at the Hampden Paper Company (Holyoke); Aerovox, Inc. (New Bedford); Kennedy Die Castings, Inc. (Worcester); United Electric Controls Company (Watertown); South Cove Manor Nursing Home (Boston); and Boston City Hospital (Boston,) as well as a general assessment of how successful the process was. [1]

Step 1: Evaluators familiarize themselves with the programs: December 1990 - February, 1991

The consultants familiarized themselves with the programs through review of documents from previous evaluations, interviews with program coordinators, and on-site visits at the workplaces themselves (which were concurrent with the first on-site evaluation team meetings).

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[1] Note that the data-gathering instruments used and the findings at each site are described in detail in the case studies contained in Appendix C, under separate cover, as well as in the complete report of the Cycle 4 MWEI Evaluation.

Step 2: Program coordinators assemble their evaluation teams: December - January, 1990

At each site, program coordinators identified the people who would best represent the workplace education program partnership on the evaluation team, and brought them together for an orientation meeting.

Step 3: Teams from six sites meet as a group: January, 1990

Representatives from all six sites met in Boston where they got to better know their fellow team members, and where they were introduced to people representing similar interest groups in the other workplace education programs from around the state. The teams were challenged to work in various kinds of group activities to begin clarifying for their respective sites answers to this fundamental outcome evaluation question: "Who wants to know what information for what purpose?" More specifically, this question was broken down into sub-questions: (1) Who are the interest groups represented in your program? (2) What information do those various interest groups want to develop in this evaluation? (3) Why do they want to know that information?

Step 4: Each team further defines "Who Wants to Know What Information for What Purpose and How Will that Information Be Gathered?": February - March, 1991

The consultants helped the teams to further define what information they wanted to get in their study and how they would get it. They accomplished this at the first of three or four site visits to the sites, during which they conducted their first on-site "evaluation team meeting."

Step 5: Teams agree on details of the data-gathering activities to be used: April - May, 1991

The consultants helped their teams finalize details of how data would be gathered. They did this at the second team meeting, and in the preparations for it. The program coordinators generally took the lead in their teams to finalize the answers to the following questions: Which data-gathering activities will we use? For each data-gathering activity, what will be the content and format? How will the data be used? How will the data be collected? How will the data be analyzed and reported? What resources need to be committed and under what time-line?

Step 6: Teams gather data: May -September, 1991

The actual gathering of data in the participating programs went more or less according to schedule. However, some of this data-collection was complicated by unforeseen staff changes and interruptions of work schedules. It is inevitable that unforeseen problems will surface. The key to continuing a successful data gathering process is flexibility.

Step 7: Special training provided on data analysis: June, 1991

In response to a request from some coordinators for assistance with computerized analysis of the data, the consultants arranged a half-day training course for any coordinators interested in learning how to use the Statistical Program for the Social Sciences (SPSS) computer software. It was discovered that the steps involved in using the program also help teams to clarify what the desired program outcomes are.

Step 8: Data analyzed: June - November, 1991

From June through October, the teams tabulated and analyzed the data they had gathered in Step 6. This was done in part with input from the two consultants. The consultants first reviewed the data which had been gathered. They then gave feedback to the teams via telephone conversations with program coordinators and in the third and fourth on-site meetings which the consultants held with the evaluation teams.

Step 9: Reporting of data and other follow-up action: August - October, 1991

Having summarized and analyzed the data, the six teams were faced with the task of preparing reports for the audiences they wished to present their findings to. The teams decided to whom they would report their findings and the formats of those reports. This was a very important step because it resolved the question of how the data would be used. Outcome evaluation would not be an idle exercise, but a real effort to document program success for potential funders and other audiences.

Step 10: Evaluation done of the outcome study process itself: September - November, 1991

In order to clarify how effective this outcome study process was, the consultants provided opportunities for the six evaluation teams to assess their own experience in the project and to make recommendations for possible future outcome study activities.

Conclusions:

- The ten-step outcome study process takes the MWEI far closer this year to demonstrating a "convincing" link between basic skills instruction at the workplace and improved job performance. The task of developing meaningful measures of a "convincing link" between basic skills instruction at the workplace and improved job performance is a difficult one which requires real, ongoing collaboration among the partners represented in a workplace education program: employers, unions, educators, and workers themselves. One effective vehicle for building this collaboration is an "evaluation team" in which these interest groups together identify the outcomes which they hope their education programs will achieve, measure what outcomes are in fact being achieved, and demonstrate the link between the education program and increased productivity and other desired outcomes. The evaluation team has also became a vehicle through which the information gathered in an evaluation can be used to improve program services.

- The limitations of traditional data-gathering methods can be overcome in subsequent studies. Teams typically decided to produce questionnaires, surveys and checklists, which would permit quick, non-obtrusive data gathering. With hindsight, this reliance on "tried and true" data-gathering methods limited the results of the study. There was, in the end, an abundance of learner self-report data, and somewhat less data submitted by supervisors -- who were so protective of their time that they often responded to questions about changes in the worker/learners in the aggregate. That is , they did not fill out a questionnaire for each learner in their department. Rather, they filled out one form which described their perception of the overall change in all the learners in their department. This was probably an inevitable limitation of the first year "try-out" study, because the team members in general could not commit the time to anything more than checklists and other easy-to-use instruments. In subsequent evaluations, however, teams should be better prepared (with the full support of upper management) to commit the time required for thoughtful evaluation. Teams should also be given the technical assistance they need to use more-creative and meaningful data-gathering instruments. These preparations will result in more creative and accurate data.

- Outcome evaluations should define "outcomes" broadly, not narrowly. All the evaluation teams were interested in identifying and measuring outcomes which would demonstrate the link between their education programs and specific improvements in employee job performance. These outcomes, in general, consisted of improved abilities to apply reading, writing, oral communication, and math in specific job functions. However, all the teams were also interested in broader outcomes which represent a new order of skills demanded in the changing Massachusetts (and American) workplace: for example, problem-solving, taking initiative, and working effectively with a team. Many of the evaluation teams were also interested in outcomes that focus on students' personal development (for example, going on to college, being able to communicate with neighbors), on their understanding of their rights as workers and citizens, and on their participation in their unions.

  All of these skills were seen as complementary and integral to the "whole" learning which makes adapting to new challenges in the workplace possible. Thus, the pool of outcomes identified by the teams reflected an understanding of how an employee's productivity can be strengthened by helping the worker to develop a mix of skills at the same time: immediately-job-specific skills, broader skills transferable across a number of jobs, and "life skills" which not only enhance the employee's personal development but are transferable back to the job.

- Outcomes vary widely from context to context, job to job, worker to worker. Some examples of reported outcomes include:

-- Reading production tickets accurately, a critical part of the production process at Hampden Paper, has improved. Sixty percent of the supervisors who responded to the supervisor questionnaire noted improvement in workers' accuracy in reading production tickets. Eighty-seven percent of the students who responded to the student questionnaire noted improvement in reading production tickets accurately.

-- The unanticipated improvement in workers' safety-related behavior at Aerovox may save the company a significant amount of money by reducing the amount of worker's compensation insurance which the company must buy. (Over 81% of the workers noted improvement in taking safety precautions, as did 66.7% of the supervisors.

-- The education program at South Cove Manor is credited with significantly increasing positive interaction between residents and nursing assistants. For example, residents feel they now interact positively with 91.6% of students.

-- At Kennedy Die castings, the supervisor who twice evaluated the students noted that students, on average, improved slightly during the period of June to August in their abilities to handle all of the given job tasks, and that they showed the strongest abilities in identifying quality defects, functioning as a company employee, and comprehending and following directions.

The Curriculum Study

The curriculum study consisted of a careful review of curriculum development at four MWEI programs. Its purpose was to evaluate curriculum, which was defined as "the materials developed and used by program staff, the process by which materials are put together, actual classroom practices, and the philosophy which guides these activities." Each curriculum was assessed against a set of standards or norms synthesized from major adult basic education documents which represent the MWEI partners' best thinking on program effectiveness.

The study began with a review of critical documents in order to develop the set of standards. From this set of standards, protocols were created for document reviews, classroom observations, and interviews. Each site was visited for at least two days, and student/workers, teachers, coordinators, and evaluation team members (representing management, labor and the education provider) were interviewed. After the information was analyzed, a draft was returned to the programs for a review for accuracy, and for additional information.

Findings are reported for each of the individual programs and are compared across the four programs. Recommendations are made for individual programs, as well as for the state Initiative.

The study concludes that there are some apparent trends or patterns across the four MWEI programs:

1. Curriculum is holistic, participatory, created or tailored at each site, and addresses needs of student/workers, companies, and organized labor;
2. Teachers are critical to program success, and the role requires significant experience and talent;
3. Instructional methods and materials are varied in all the programs; but one important mode of learning, computer-assisted instruction, is lacking in all four programs;
4. Student/workers at all four programs participate in curriculum decision-making;
5. The curricula at all four programs are work-related, but also include other skills and knowledge which student/workers need at work and in other parts of their lives;
6. The programs' curricula are meeting MWEI standards;
7. Across the state Initiative, how to meet the full range of student/workers' basic skills needs through these small programs is an unsolved problem;
8. The curricula have an impact on workplace culture; and
9. There are site-produced curriculum products and processes which could be refined and disseminated.

Termination Study

The termination study was born midway through the evaluation year when one company-- Friction Materials, Inc. (FMI)-- ceased operation and another, Spir-it, Inc. (Spir-it) became unable to sustain its education program. This study:

(1) describes and analyses how the goals of the FMI ESL program were linked to company growth and profitability and examines why the program -- and the company -- could not fulfill its goals;
(2) examines why Spirit, Inc. was no longer able to sustain its education program, and addresses in particular what role basic skills education played in the company's long term strategy to bring about needed organizational change.

The evaluator conducted a series of interviews with program staff and company representatives at each site and then wrote case studies on each program. The evidence and analysis presented here are intended to guide discussion about workplace education in ways which link its success or failure to broad company, union, and worker goals.

Friction Materials, Inc., Lawrence

FMI was a small (100 to 300 employees), fifty-year-old manufacturer of brake technology. Five years ago, the company was on the brink of bankruptcy, in part due to heavy investments in new, non-asbestos based materials, and in part because it was losing customers from a worsening reputation for poor quality. The once successful company at that point negotiated a transfer of assets to Ecklin, Inc.-- a large and successful manufacturer of automotive parts. By February 1989, when the FMI on-site ESL program was begun, FMI had grown from 100 to 260 employees.

The ESL program hoped to address some of the problems the company still faced despite its growth: (1) poor retention of workers; (2) poor communication between English-speaking supervisors and Spanish-speaking workers; (3) inadequate skills which prevented many workers from participating in a company-wide program in statistical process control; and (4) financial loss from excessive waste in the production process, also to be addressed by the new SPC system.

In late winter/early spring 1989, with enrollment high, it seemed that the FMI program was one of the best examples of a successful workplace education program in the MWEI. But, by late summer, over 100 workers had been laid off and classes were reduced by over two-thirds. The reason given for the lay-offs was lack of orders caused by a small recession. Much effort went into keeping the ESL program alive during this time. Clear communication between workers and supervisors was critical because (1) Ecklin began production of a more-complicated brake which required workers to take instructions from supervisors; and (2) a company-wide SPC program was being instituted that demanded good English-language skills. However, Ecklin announced that it would shut down operations at FMI a week before the teacher was to pilot a new quality-awareness program. Ecklin cited fiscal reasons for closing the plant. Did the ESL program live up to its promise? If so, was the program simply not enough to help save the company? Or was the program never fully realized as part of a genuine strategy for company change? If it was never fully realized, why wasn't it-- given the apparent agreement on goals among the key players? The information collected during the termination study attempted to answer these questions.

Conclusions

- Despite the agreement on goals among the key players, the program did not live up to its promise. There was not enough support from upper management to develop it fully or to carry it through hard times.

- Under pressure to meet quotas with a diminished workforce, management seemed to pit immediate production goals against a long-term commitment to education and organizational change. But this is more complicated in an industry where there is no history (and no need until now) of understanding the relationship between education and improvement.

- Management's commitment to instituting a complete quality control program was questionable. There was even a question about the extent to which the quality program was intended to be an appeasement for one large customer as opposed to a method which genuinely guided production and standards for all customers.

- Because of the muddled messages being sent by management about education and quality, the workers were not motivated to attend the ESL class.

Spir-it, Inc., Wakefield

Spir-it , Inc. is a 35-year-old company of about 125 people which produces plastic stir-sticks, straws, picks, spears, and food markers. Purchased from the original owner in 1988 by an investment group, the company hoped to grow over the next two years to annual sales of $15 million. This new management plan, coupled with the need to automate production to meet changing customer demands, underscored the need for on-site instruction to workers whose basic skills and English-language proficiency were limited.

In the spring of 1989, an ESL program was begun for a small group of workers. Workers attended class on their own time after the main shift. After its first year, the program seemed successful enough but then enrollment dropped to a handful. When Spir-it showed a negligible profit in the second program year, management decided to make the changes which they had been talking about for some time: (1) consolidate production functions; (2) automate; and (3) institute SPC. The Spir-it education advisory board tried to answer: How can the educational services offered through the MWEI most help the company in a time of transition? The answer included a plan to offer a pre-SPC course on company time for all employees that would raise consciousness about quality and prepare the way for SPC.

The coordinator developed the pre-SPC curriculum but, shortly before it was to be piloted, the program foundered on the issue of release time for line workers. Management decided it could not offer any program to workers during shift time as planned because of increasing pressure to meet production quotas. Management decided to offer the pre-SPC program to supervisors and managers who, as salaried workers, could be asked to put the extra time into training without pay. These people would then, in turn, teach the set-up people, line workers and operators during their shifts. This solution did not meet with the standards set by the state funder for proper use of workplace education funds for basic skills education. When management further indicated to the state coordinator that no enticement could be made to line workers to contribute their own time to the education program because they might be laid off in the near future, a fundamental problem became even clearer: The target group defined by federal guidelines would probably no longer be employed.

Conclusions

- Although it appeared that Spir-it was developing a company-wide educational strategy to increase production in the long run, the company did not make a real investment in education when production was tight. The management at Spir-it seems to have felt so desperate in the face of continually falling profits that they could not entertain an alternative perspective, one which may have helped them improve production through an investment in education.

Recommendations

Outcome Study

The following summary recommendations for the outcome study are divided into two sets. The first set is for state-level planners and funders; the second is for the evaluation resource people who would provide technical assistance to evaluation teams in the future.

In order to build on the strengths of the first year's experience and avoid the problems encountered, state-level planners and funders of workplace education programs should:

- Modify funding guidelines to require that each site have an active planning and evaluation team in place if it is to qualify for funding. These teams would be more than figurehead groups. They would be required to work together over the course of the funding period to perform appropriate planning and evaluation activities. They would need an active coordinator in charge of organizing planning and evaluation activities. These activities would include ongoing goal-setting activities and development and use of appropriate measures of program outcomes. Program coordinators are the likely people to take on this role.

- Require these planning and evaluation teams to follow a step-by-step process similar to that developed in this first year's project. With access to a core group of resource persons having technical expertise in the various facets of planning and evaluation work, the evaluation teams could efficiently incorporate planning and evaluation as a central function of their work, as they did in Cycle 4. Already-existing teams would continue to receive technical assistance from resource persons. The state-level partners would also organize this core group of resource persons in Cycle 5.

- Provide additional workshops where supervisors, managers, workers, union representatives, and education staff meet together in their interest groups across programs. The outcome evaluation this year only touched on the benefit of this kind of cross-fertilization in the January 10th workshop. With the exception of education staff who already enjoy regular meetings with their counterparts from other programs, all of the participants at that workshop said that they wanted more time with other people around the state who share their particular interests.

In addition to what the state-level partners need to do, a good deal of activity is needed at the level of the local workplace education partnerships. If the partnerships are re-organized under "planning and evaluation teams," then the members of those teams must be educated about the value and technical requirements of effective program evaluation. Specifically, to best facilitate team based evaluations in the second year, evaluation resource persons should:

- Provide training opportunities in which teams can develop a team identity and negotiate goals to be achieved through collaborative program evaluation.

- Develop additional conceptual frameworks and group exercises through which teams can clearly define desired workplace education outcomes.

- Actively address the contradiction between programs' desires to measure meaningful outcomes and the limited amount of time they feel they can invest in collective planning, data gathering, and analysis.

- Explore different ways to collect data beyond the checklist, survey, and interview; develop a "menu" of methods for use across programs, including both "direct" and "unobtrusive" methods.

- Consult with a specialist in measurement to ensure that evaluation tools are methodologically correct.

- Gather the teams together for more frequent sharing of information.

- Expand the computer data-analysis expertise among teams for the following reasons. Computer analysis can:
  -- help to systematize the sequence of steps in conducting an outcome study;
  -- establish a system at the beginning of a study -- for even a small group of respondents -- which can be expanded and compared over time;
  -- over time help to bring other data-collection procedures in the workplace into a comparable format;
  -- present data in a statistical format which appeals to managers and others who want "hard" information about how the program is working;
  -- provide another way for students to become involved in their programs and their evaluations.

A second year of planning and evaluation activity could thus combine guidelines, funding, and technical assistance to create a new orientation and new capacities in all workplace education programs in the state. This second year's activity should itself be evaluated and in turn built on in future years.

Curriculum Study

The Massachusetts Workplace Education Initiative has wisely encouraged each of the programs to develop its own curriculum, tailored to meet its own local needs. However, at this point in the development of the Initiative, we believe that the programs could benefit from a more systematic approach. We recommend the following actions and indicate in parentheses who might take responsibility for them:

1. Expand the use of evaluation team to all current and new programs, to enable programs to define and measure program outcomes and to evaluate programs' diagnostic/placement and student progress assessment systems (Evaluation Team).

2. Provide an opportunity for programs to share, publish, and compare their intended outcomes (State Level Partners).

3. Ask advisory committees and those responsible for curriculum development at each site to review their curriculum and classroom assessment instruments in terms of newly-clarified intended outcomes, and to refine (add and eliminate) curriculum units and instructional activities to increase achievement of these agreed-upon goals (Program Sites).

4. Examine intended outcomes across the initiative to determine which of these goals are widely shared, and publish a document listing these. Ask individual programs to list commercial and home-grown curriculum materials which they have found effective in helping student/workers achieve these outcomes; and prepare, publish and distribute a matrix of these materials indexed to their intended outcomes. This will serve three purposes: (1) it will provide a useful self-evaluation activity for each program, as it sees for which goals it has or doesn't have adequate instructional materials; (2) it will provide a useful way for programs to share materials across the Initiative; and (3) it will provide a clear picture of where materials need to be developed across the Initiative (State Level Partners, through the System for Adult Basic Education Support [SABES]).

5. Using the set of draft curriculum standards which we prepared for this study (or another draft set of curriculum standards) ask representatives from all programs in the Initiative to review, critique, and accept a set of initiative-wide curriculum standards. Use these standards in requests for proposals, and use them for periodic peer evaluation of workplace education programs (State Level Partners and Program Sites).

6. Staff development is important for all workplace education teachers and other staff. Each staff member should have an annual staff development plan which is related to areas of the job in which this person agrees that further knowledge, skills, or practice are needed (State Level Partners and Program Sites).

7. As workplace education teachers need to share their problems, solutions, and expertise, we recommend that regional workplace education teacher-sharing networks be created in at least two other parts of the state, the central and western regions. They could be modelled after the successful existing network in the Boston area sponsored by the ALRI/SABES Greater Boston Regional Center. These networks could use the above matrix as a tool for teachers sharing curriculum materials and for collaboration to develop new materials across programs (State Level Partners, through SABES).

8. Copies of workplace education curricula and curriculum materials developed locally and elsewhere should continue to be collected at the ALRI/Greater Boston SABES Regional Center library and at the State Workplace Education Library, and lists of these materials should continue to be updated and circulated among workplace education programs (SABES).

9. The orientation for adult basic education staff developed by Quinsigamond Community College for its adult education teachers should be reviewed by SABES as a possible model for orienting new workplace education teachers regionally across the state (SABES).

10. The position of state Workplace Education Coordinator should be restored in order to coordinate these and other state-level responsibilities (State Level Partners).

11. The workplace education programs should consider the advantages of computer-assisted instruction, and purchase computers. The state staff-development and support system should provide training to workplace education teachers in how to use computers for instructional purposes and as tools for word processing, and information storage and retrieval (State Level Partners, Program Sites, and SABES).

12. As in many adult basic education efforts, the systematic teaching of mathematics is weak or non-existent in these programs. Mathematics instruction, possibly using computer-assisted instructional software, should be made a higher priority, particularly in programs where mathematics knowledge and skills are required to perform work tasks (Program Sites).

13. If the use of computers in workplace education programs in small-to medium-sized companies is to become a reality, resources for computers and computer-assisted instruction need to be made available to programs through both public and private sources. In particular, we recommend that the Federal Workplace Education Initiative address this problem in its guidelines and requests for proposals.

Termination Study

- The MWEI should encourage employers and unions to think about education as a long-term strategy for improving workers' skills and reorganizing the workplace. This encouragement may take the form of a workshop, seminar, or panel presentation designed for the business community and organized labor.

- The MWEI should solicit the public support of business and union leaders who are invested in education as a long-term strategy for change in the workplace, and involve them in workshops and other presentations on the topic.

- The MWEI should consider more deeply than it has already how ethnicity and class influence program success. It should include these issues in discussions and workshops about workplace education.
- The MWEI should consider first-language instruction in those settings where it is an appropriate strategy.

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Introduction

In November of 1990, the Bureau of Adult Education in the Massachusetts Department of Education contracted with Evaluation Research, an independent consulting company, to conduct an evaluation of the fourth Cycle of operation of the Massachusetts Workplace Education Initiative (MWEI). The broad goals of the MWEI Cycle 4 evaluation were:

1. to review the organization and delivery of educational materials and curricula in four workplace education programs and to assess the overall effectiveness of these materials and curricula;

2. to develop a process for defining and measuring meaningful "outcomes" in eight workplace education programs, a process which would become the basis for an ongoing, customized evaluation system in each program.

This report describes the rationale for, and the methods and results of what came to be known as the "curriculum study" and "outcome study" of the MWEI Cycle 4 Evaluation. Midway through the outcome study, one company relocated its operation to another plant and another was unable to modify its education plan to comply with federal guidelines. As a result, Evaluation Research conducted termination evaluations in these two companies. The "termination study" became the third section of the MWEI Cycle 4 Evaluation.

Background of the MWEI and the Cycle 4 Evaluation

The Massachusetts Workplace Education Initiative was begun in 1985 as an interagency effort to bring adult basic education and English as a Second Language (ESL) instruction directly into workplaces throughout the state. State policy makers had at that time become concerned about the large numbers of workers who did not have the basic skills to apply successfully for new jobs after plant closings and other lay-offs. This concern led the former Office of Training and Employment Policy in the Executive Office of Economic Affairs, the Bureau of Adult Education in the Department of Education, the Executive Office of Labor and, later, the Commonwealth Literacy Campaign to form a partnership to improve workers' skills before they lost their jobs. It was felt that a more-skilled workforce would strengthen business, enhance competitiveness in a harsh economy, and save jobs.

As this workforce initiative got underway, it was becoming clear that Massachusetts was not alone in its concerns about the readiness of its workforce. Increasingly, a national alarm was being sounded in the late 1980s about the need for American employers and union leaders to take more responsibility for re-skilling the workforce. Prominent figures like Labor Secretary Elizabeth Dole and Xerox CEO David Kearns alerted the nation to the education "crisis' in the workforce. "Workforce 2000: Work and Workers for the 21st Century," the widely-cited 1987 report by the Hudson Institute, stated unequivocally that as the American workforce grows older, includes more women, and becomes racially and ethnically more diverse toward the year 2000, no institution in the nation can automatically depend on having an unending stream of new workers with the right skills to match available jobs. Further analysis of the problem and possible solutions were offered in "America's Choice: High Skills or Low Wages," the challenging report of the National Center on Education and the Economy. The authors described the mismatch between an aging American workforce trained in large-lot, assembly-line manufacturing processes and the demands of a new. global, customized manufacturing economy. They suggested that America increase its productivity by reorganizing how we work, training workers to perform more skilled jobs, and emphasizing quality.

Organized labor was also adding its voice to the discussion with a similar set of arguments. Anthony Sarmiento, Assistant Director of Education for the AFL-CIO, wrote: "If managers focus entirely on their firm's next quarter performance, long-term investments like worker training and research and development are ignored. How do we avoid the economic 'cliff' ahead, where the gap between the economic 'have's' and 'have nots' will widen still further and social tensions will deepen? Our first task is to better understand the nature of the problems we face. We need to restructure our outdated workplace, not just expand and improve our inadequate education and training systems. Both will require money and patience, as well as a renewed commitment to all workers and their families." Numerous other reports, studies, and articles were also being written by analysts from varied fields which legitimized the need for improving workers' skills as a major component of a larger reorganization of the American workplace.

Local business leaders took up this cause, as well. In early 1991 twenty-three Massachusetts CEOs sent a letter to Governor William Weld urging state support for education in the workplace. They said: "We are, all of us, dependent upon the quality of our workforce to make quality products and to deliver quality services on time. We cannot compete in today's international markets unless we can offer the high quality goods and services our customers demand, when they demand them. To do this we must have a workforce skilled for the '90s; and we must have it now, not ten or twenty years from now."

However, despite these calls to action, information remains relatively scarce about how education programs function optimally in the workplace, how curricula are best developed and implemented, and what is actually being achieved in these programs.

Former Evaluations

Cycle 1

In the mid-1980s, the MWEI state partnership found very little information to guide its development of service delivery and policy in the new field of workplace education. As a result, the partnership commissioned a series of evaluations which documented the varied workplace education service delivery models being developed around the state. With this information, the state partnership began to systematically educate itself about this new enterprise.

In Cycle 1, the evaluation consisted of ethnographically-oriented case studies of six workplace education programs. In order to understand how workplace education programs might function in different settings with different worker populations, six sites were selected which represented a cross-section of industries and populations: a distribution center for a national discount retailer of clothing and household goods, a hospital, a small metals manufacturing company, two laundries, a national communications corporation, and a consortium of clothing manufacturers.

The case studies documented how the programs were conceived, developed, and carried out on a day-to-day basis. They described the worker population, the learner population, recruitment methods, curriculum, scheduling of classes, barriers to program participation, and particular program strengths and weaknesses. Out of these six case studies emerged the basic guidelines for effective program development that the MWEI has built on over the years. These included:

- Conceive of your workplace education program as a partnership that represents the varies interests of the partners -- upper-level management, supervisors, union representatives, workers who are enrolled in the program, education staff -- even workers who are not enrolled in the program.
- Do not assume that the support of upper-level management alone will insure the success of a workplace education program. Involving mid-management and supervisors in program planning is also essential. These are the people who have daily contact with the workers and who therefore support -- or do not support -- the program in practice.
- Designate a program coordinator whose job it is to facilitate the partnership and oversee program development and implementation.

Cycles 2 and 3

The Cycle 2 evaluation continued to build a data base about what was going on in MWEI programs by preparing detailed case studies on an additional seventeen programs. It also continued to identify the essential "building blocks" of a successful workplace education program. But by Cycle 3 policy makers were looking for information which focused more specifically on program outcomes.

From the beginning, the state had seen its investment in workplace education as a way of "seeding" programs whose costs would eventually be picked up by the host employer and/or union. By Cycle 3 it was becoming increasingly clear that employers wanted to know whether the programs were delivering results or not before they invested in them. Similarly, unions were exploring the conditions in which they would or could support basic skills programs with money as well as good will.

As these potential "investors" in workplace education looked more closely at where to put their worker education resources, questions persisted about how to define and measure success. For example, some employers and unions began to see education as one part of an overall strategy to improve production, services, and the organization of work, and believed it was misleading to assess their education program apart from other changes being undertaken. Other institutions were more tied either to traditional academic measures of student learning (measures whose applicability in the workplace were questionable), or to a "hard" measure of cost saving that would guarantee return on investment.

In response to these questions about the desired outcomes of workplace education and how to measure those outcomes, the Cycle 3 evaluation negotiated with seven workplace programs representing different industries and worker groups to participate in a pilot outcome study to be conducted by an outside evaluator. Four of these programs were in small businesses, one in a hospital/nursing home complex, one in a high-tech manufacturer of communications technology, and one in a distribution center for a national discount retailer of clothing and household goods. All seven of the programs provided ESL classes and only one provided primarily adult basic education.

This Cycle 3 pilot outcome study was the MWEI's first attempt to (1) identify and measure site-specific outcomes, (2) analyze what outcomes are meaningful in different business and industry contexts, and (3) build a case for why companies and unions should continue to support education beyond the "seeding" stage.

The pilot outcome study found that:

- Outcomes are relative to the goals which are established for a program. A workplace education program is a partnership among different interest groups which may hold different goals for the program, including, at least: the participating workers, union representatives, supervisors, and managers.

Complete and fair evaluations of outcomes must therefore provide all players opportunities to, first, define the outcomes to be evaluated and then assess what outcomes in fact are being achieved.

- Outcomes can be desired or actual. Desired outcomes are what the program wants to bring about, especially in the long term; and actual outcomes are what the program is in fact achieving in the present. The actual outcomes can be anticipated, or unanticipated. Anticipated outcomes are those that are consonant with the desired long term outcomes. Unanticipated outcomes are surprise, unpredicted outcomes. In the case of the workplace education programs studied in Cycle 3, unanticipated outcomes were universally positive and shed light on how broadly defined the effects of a workplace education program might be. For example, entry-level workers in a nursing home reduced their absent days to almost zero, saving the administration thousands of dollars in fees to agencies who provide day-replacement workers. Similarly, a small manufacturing company found that the number of accident claims made to the personnel office was reduced to almost zero.

- Desired and actual outcomes vary from program to program, even within the same industry, and they also vary across industries. Outcomes are relative to the type of basic skills, ESL or other educational service offered, educational staff and materials used, the demographics of the worker population, whether a union is involved, the type of product being produced, management styles, and the economic conditions in which the company competes. Workplace education program outcomes are, therefore, not fixed entities which can be approached in a one-dimensional way. Rather, outcomes change from program to program, and even within programs themselves, depending on a variety of conditions.

The Cycle 3 evaluation thus helped the Partners clarify some of their concerns about how to measure program outcomes. Wanting to build on these findings, the MWEI was, in Cycle 4, motivated even more strongly to help programs continue to assess their outcomes in terms that are more specifically relevant to employers', unions', and learners' goals. As a result, the evaluators developed a process for defining and measuring meaningful, site-specific outcomes which was piloted in six workplace education programs. This process would be designed so that any workplace program could adapt it to its own evaluation needs and resources and develop its own ongoing, customized evaluation system. Evaluation would thereby become seen within MWEI not as something done "to" programs by outside evaluators but as an intrinsic part of every program's day-to-day operations. In Cycle 4, the Partners also recognized the need to have more-detailed information on the range of curriculum models being developed in its programs. MWEI thus took the opportunity to review the organization and delivery of educational materials and curricula and to assess the overall effectiveness of these materials and curricula. The curriculum study forms the second section of this report.

Participating Programs

The following programs participated in the Cycle 4 curriculum and outcome studies. The curriculum study was conducted in four of the same programs that hosted the outcome study. An asterisk indicates participation in both studies. No asterisk indicates participation in the outcome study only. The programs at Friction Materials in Lawrence and Spir-it, Inc. in Wakefield are described in the termination study, section three of this report.

Laura Sperazi conducted the termination study. She also conducted the outcome study at the Hampden Paper Company and Aerovox, Inc. Paul Jurmo conducted the outcome study at the United Electric Controls Company, Kennedy Die Castings, Inc, South Cove Manor Nursing Home, and Boston City Hospital. David Rosen conducted the curriculum study at the South Cove Manor Nursing Home, Boston City Hospital, Kennedy Die Castings, Inc., and the Hampden Paper Company.

Hampden Paper Company, Holyoke*

Hampden Paper is a small (180 workers), family-owned, paper manufacturing company situated along the Connecticut River. As the work at Hampden Paper becomes more skilled and more customized, greater demands are made on workers to communicate, collaborate, problem-solve, innovate, perform quality control, and perform more than just one job. Education is seen as a primary strategy for sustaining this massive change at Hampden Paper.

At the present time, all levels of ESL, ABE and GED instruction are offered on an individualized, by-appointment basis in the company learning center (classroom). In addition to the instruction currently offered, a "certification" program will soon be developed. This will mean that workers can become certified to perform as many operations in the production process as they choose to learn through enrolling in -- and completing -- job certification programs.

Aerovox, Inc., New Bedford
Aerovox, Inc. manufactures capacitors -- conduits for electrical charges. Aerovox is a medium-sized company (about 700 employees) in a mature industry faced with the challenge to automate, down-size, develop a quality control program, and to improve worker skills. These changes must be made if the company hopes to compete with companies which are producing less expensive, equally sophisticated products outside the U.S. As the company embraces more sophisticated production technology, the demand for workers to communicate and read well in English and to perform math functions required for statistical process control increases substantially.

The three components of the Aerovox workplace education program -- ESL, ABE/GED, and math for SPC -- all directly address the need for improving workers' basic skills to prepare them for new forms of work. When management looks to where it wants the company to be six years from now, education becomes a larger and larger part of the overall strategy to get it there.

Kennedy Die Castings, Inc., Worcester*
Kennedy Die Castings, Inc. is a forty-one year old manufacturer of metal castings. It employs about 100 people. Like many small manufacturing companies throughout the state, Kennedy Die Castings faces new challenges as it: converts its production methods to include sophisticated, computerized machinery; introduces the team approach to problem-solving known as "quality circles;" and institutes statistical process control to keep costs down and quality up.

About 65 % of the employees at Kennedy Die Castings are limited English proficient. Most of these employees are Southeast Asian, Polish, and Hispanic. Changes in the production process demand that these workers adapt and upgrade their skills to accommodate increasingly sophisticated machinery and team methods of problem-solving. The company offers one

ESL class. Providing on-site instruction is one step toward developing a confident, skilled and adaptable workforce.

United Electric Controls Company, Watertown
Since 1987 this successful family-owned manufacturer of industrial sensors and temperature control devices has overhauled its management and production technologies according to the principles of "continuous improvement." Motivated by severe profit losses, it abandoned traditional "large lot" manufacturing methods in favor of techniques that stress employee participation in the production process. In order to facilitate these company-wide changes, management offered ESL instruction to its limited-English-proficient workers, approximately 45 of its 350 employees.

The ESL program continues to be an integral part of the overall strategy to continually refine the production process. Without it, old and new employees who have limited English language skills would not be able to participate fully in these changes.

South Cove Manor Nursing Home, Boston*
The "product" which staff produce in this one-of-a-kind nursing home for elderly Chinese people in the Commonwealth is quality resident care. Differences in culture and language between primarily-Chinese nurses' aides and other entry-level workers and native-English-speaking supervisory staff can compromise quality of resident care in serious ways. For example, the seemingly small error of placing a salted or sugared food item on a food tray for a resident with restricted dietary needs may cause health problems.

The South Cove Manor ESL program facilitates communication among English-speaking R.N.'s and M.D.'s, Chinese-speaking nurses aides and other entry-level workers, and between nurse's aides and residents, thereby improving the quality of resident care.

Boston City Hospital, Boston*
The main facility of this large urban medical center which serves Boston's poor recently underwent major renovations in order to provide better care to

more people. Like other hospitals and health care agencies, Boston City Hospital (BCH) faces a critical shortage of trained workers at the entry, aide, technician, and R.N. levels. Basic skills instruction and a unique study skills course is one part of the hospital's strategy to retain loyal workers, promote them through the ranks, and become a quality care facility.

The BCH program is unique in two ways. First, it recruits workers from three other affiliated health care facilities through union membership. (There are three unions which support the BCH workplace education program: AFSCME 1489; SEIU 1475, and SEIU 285.) And, second, it offers two very different levels of instruction: the ABE/PRE-ASE/ASE level and a study skills class which prepares people for study beyond the secondary level.

These programs are described in greater detail in the case studies contained in Appendix A, under separate cover.

The Outcome Study

The Evaluation Team Process: How It Answers Difficult Questions in Workplace Education Program Evaluation

In a widely-cited article titled "Evaluating National Workplace Literacy Programs," Thomas Sticht defines the purpose of a workplace education program evaluation. His frame of reference is programs funded through the National Workplace Literacy Program (NWLP). He says that program evaluation should be seen in the context of the goals of the NWLP: "The ultimate goal of the National Workplace Literacy Program is to improve the productivity of the workforce through the improvement of workers' literacy abilities. For this reason, after providing convincing evidence that improvements have taken place in literacy abilities, the workplace literacy provider needs to present convincing evidence that the improvements in literacy have led to improvements in job productivity." (p.10) In the same article he also says that: "...one of the goals of evaluation is to permit the improvement of programs, not to simply decide if they work or not." (p.10)

While educators, union representatives, workers enrolled in programs, and even some company managers might choose to define the ultimate goal of their programs in somewhat broader terms than improving the productivity of the workforce, the fact remains that demonstrating a "convincing" link between worker participation in a workplace basic skills program and increased job-related productivity is a national priority. The task of developing meaningful measures of that "convincing link" is a difficult one which requires real, ongoing collaboration among the partners represented in a workplace education program: employers, unions, educators, and workers themselves. One vehicle for building this collaboration is an "evaluation team" in which these interest groups together identify the outcomes which they hope their education programs will achieve, measure what outcomes are, in fact, being achieved, and demonstrate the link between the education program and increased productivity and other desired outcomes.

It took the Massachusetts Workplace Education Initiative four cycles of evaluating its programs before it began to explore this process of team development and mutual definition and measurement of outcomes. Despite the imperfections of the process -- it is new and needs considerable refinement -- it took us one big step closer this year to actually forging and demonstrating a link between basic skills instruction at the workplace and increased productivity. Furthermore, the evaluation team has became a vehicle through which the information gathered in the evaluation can be used to improve program services. Thus, evaluation becomes more than just figuring out what works or not.-- it becomes a way of using what you learn to improve what you do.

The MWEI Outcome Evaluation: Cycle 4 Summary Results

The following is a summary of the findings of the MWEI Cycle 4 Outcome Study. Subsequent sections of this report describe in detail the ten-step process we employed and elaborate further on the study's findings and future directions.

- The main finding of this study is that it is both possible and desirable to establish a process for identifying and measuring workplace education program outcomes which actively involves representatives of the entire partnership. This requires a major commitment of time and hard work from the company, union, education staff, and students which should be built into the work-plan for the project. Outside consultants -- acting as facilitators of a team-building and planning process -- are an essential element in the establishment of the evaluation team, especially in the beginning stages of the evaluation.

- In this model, consultants are really training the teams in many aspects of survey and evaluation research -- goal-setting, questionnaire construction, data analysis, and so forth. If team members have some familiarity with the mechanics of evaluation, the work is made easier. If team members have limited -- or no -- familiarity with evaluation, problems will then no doubt arise about the amount of time spent in this work, and who (the team or the consultant) should be doing it.

- Designing data-gathering instruments is a difficult task that requires expert help for two reasons. First, people want instruments that take very little time but are also accurate. Second, the way that we typically think about data-gathering instruments in this setting -- questionnaires, surveys and checklists -- might be time-saving but not the best way to measure what needs to be measured. Simulations, indirect measures of achievement, use of existing data sources like productivity or personnel records -- these and other measurements should be explored. Establishing a computerized data base with a software package like Statistical Program for the Social Sciences (SPSS) early in the evaluation can help to organize how team members think about evaluation and helps team members to streamline questionnaires and surveys.

- Student self-report data are central to understanding the change that takes place in a workplace education program, and no evaluation of a workplace education program would be complete without them. There are even some workplace education programs (not in the group of programs under study in this report) which consider student self-reports the most reliable source of data about program impacts.

However, this year's new look at program outcomes raises old methodological questions about (1) the strengths and limitations of student self-report data, and (2) about the disparity between students' and supervisors' perceptions of change. Much of the data collected by the participating programs are student self-report data supplemented by supervisor reports, and, in one case, by "customer" reports from the residents in the South Cove Manor Nursing Home.

In some cases, when student self-report data were compared with supervisors' assessments of those same students, there turned out to be a significant disparity between supervisors' and students' perceptions. This disparity presented the consultants with a number of questions: "What does this disparity mean?" and "Whose assessments more accurately reflect reality -- the supervisors' or the students'?"

Upon further reflection, the consultants identified the following factors as possible reasons for the disparity between supervisors' and students' assessments:

Different expectations or standards: Students and supervisors might be operating with different levels of expectations about what students should be achieving. For example, a limited-English-proficient nurse's aide might consider it a great achievement to simply be able to say a few words of greeting in English to patients, while a supervisor might expect that same aide to be much more fluent. Furthermore, the supervisor might be looking at the employee's overall competency rather than facility with the components of a learning task. For example, the student may have learned many of the steps involved in using fractions and see tremendous improvement in his math, but not yet be able to apply that learning to his job.

Lack of understanding of an evaluation's terminology or "mechanics": Some students and/or supervisors might not fully understand the terms being used in, say, a questionnaire. Or perhaps they aren't familiar with the rating scale used. If frustrated, embarrassed, or confused by these 'technicalities," an informant might provide inaccurate responses to the questions asked rather than take the time -- and risk embarrassment -- to ask for help.

Lack of trust about how responses will be used: Students might fear that, if they give themselves a low rating on a self-report, they -- or their teacher -- might somehow be punished. Similarly, a supervisor might be concerned that giving a student a "low" rating would jeopardize that student's chances for promotion; that supervisor might therefore tend to inflate students' scores.

Comparing aggregate ratings by supervisors to individual self-assessments by students: When there are many students enrolled in a program, with significant numbers in each department in the host institution, it is very time-consuming for supervisors to assess change in students on a case-by-case basis. Consequently, in some programs, supervisors were asked to respond to questions about change in students' behavior in the aggregate. That is, they considered the students as a group rather than as individuals. While these aggregate data give overall impressions of what changes have occurred in students' performance -- data which can be useful -- they 'flatten" the assessment of change by making it impossible to distinguish between those students who have learned/changed considerably and those who have learned/change less. When data from students' self-assessments are compared to the composite picture presented in the supervisors' assessments, there will naturally be a disparity between the students who rate themselves low or high and the "average" scores reflected in the aggregate data.

It appears that student self-reports are most useful under the following conditions: (1) students are actively involved from the start in setting program goals and designing meaningful and "user-friendly" instruments for gathering data about actual progress toward those goals; (2) students have an opportunity to practice using those instruments, so that they understand the "mechanics" of the instruments as well as the need for honest, thoughtful answers; (3) there is a high degree of trust between students and others involved in the program, so that all involved support the notion of students' providing honest, thoughtful information, and (4) students' self-reports can be directly compared to data from supervisors' ratings and/or other sources.

- All the teams were interested in identifying and measuring outcomes which would demonstrate what the link was between their workplace education program and specific improvements in employee job performance. These outcomes, in general, consisted of improved abilities to apply reading, writing, oral communication, and math in specific job functions. However, all the teams were also interested in broader outcomes which represent a new order of skills demanded in the changing Massachusetts (and American) workplace: for example, problem-solving, taking initiative, and working effectively with a team. Many of the evaluation teams were also interested in outcomes that focus on students' personal development (for example, going on to college, being able to communicate with neighbors), on their understanding of their rights as workers and citizens, and on their participation in their unions. All of these skills were seen as complementary and integral to the "whole" learning which makes adapting to new challenges possible. Thus, the pool of outcomes identified by the teams reflected an understanding of how an employee's productivity can be strengthened by helping the worker to develop a mix of skills at the same time: immediately-job-specific skills, broader skills transferable across a number of jobs, and "life skills" which not only enhance the employee's personal development but are transferable back to the job.

- Despite the methodological limitations of this study, evaluation teams did report change. For example, at Hampden Paper, understanding production tickets is a critical part of the production process. These "tickets" give instructions on how to make a particular paper product. Sixty percent of the supervisors who responded to the supervisor questionnaire noted improvement in workers' accuracy in reading these tickets. Eighty-seven percent of the students who responded to the student questionnaire noted improvement in reading accurately.

At Aerovox, an identified -- if unanticipated -- improvement in workers' taking safety precautions may save the company a significant amount of money by reducing the amount of worker's compensation insurance which the company needs to purchase. (Over 81% of the workers noted improvement in their safety-related behavior, as did 66.7% of the supervisors.) While the workplace education program may not claim all the credit for this improvement -- the company nurse had also begun more safety training (especially with drivers) during the year, and reassigned injured workers to "lighter" jobs -- the members of the evaluation team, including upper-level managers, believed that the education program was, at least, partially responsible.

The exhaustive tabulation of the data gathered by the South Cove Manor program coordinator provided similarly telling insights into the outcomes a workplace education program might bring about. The education program is credited with significantly increasing positive interaction between residents and nursing assistants. For example, residents feel they interact positively with 91.6% of students; residents report that 83.3% of students adequately explain procedures; residents report that they now interact more positively with 66.6% of students; and students feel that they now satisfactorily engage in 57.81% of the positive interactions considered critical to quality care.

At Kennedy Die Castings, the supervisor who twice evaluated the students noted that students, on average, improved slightly during the period of June to

August in their abilities to handle all of the given job tasks, and that they showed the strongest abilities in (a) identifying quality defects, (b) functioning as a Kennedy employee, and (c) comprehending and following directions.

Chart A: Summary of Types of Outcomes Identified in MWEI Cycle 4 Outcome Study

Program	Impact on Worker		Impact on Worker	Impact on Worker	Impact on Organization
	Job Specific/Higher Order Skills		Personal Development	Union Interests	
Hampden	X	X	X	X	X
Aerovox	X	X	X		X
Kennedy	X		X		X
UE	X	X			X
SCM	X				X
BCH	X	X	X	X	X

Chart B

SUMMARY OF DATA-GATHERING ACTIVITIES UNDERTAKEN IN M.W.E.I. YEAR 4 OUTCOME STUDY

SITE	**Sup. Q**	**Sup. Interviews**	**Learner Q**	**Simulation**	**Client Interview**	**Flow-Sheet**
Hampden	7 sups. rated 20 Ls		20 Ls			
Aerovox	9 sups. rated 55 Ls		55 Ls			
Kennedy		1 sup. rated 10 Ls (twice)	10 Ls (twice)			
UEC	4 sups. rated 14 Ls		19 Ls			
SCM	8 sups. rated 12 Ls		23 Ls	19 Ls	8 clients rated 12 Ls	21 Ls
BCH	6 sups. rated 6 Ls		7 Ls			
TOTALS	34 sups. rated 107 Ls	1 sup. rated 10 Ls (twice)	134 Ls	19 Ls	8 clients rated 12 Ls	21 Ls
Abbreviations:						
Q= questionnaire						
Sup. = supervisor						
Ls = learners						

The Outcome Study as a Ten-Step Process

The outcome study is reported here as a ten-step process that both reports on the work of the participating programs and offers a schematic which -- with adaptation -- can be used in other programs. Note that the data-gathering instruments used and the findings at each site are described in greater detail in the case studies contained in Appendix A, under separate cover.

I. Goals to be achieved:

The outcome study was designed as a combined outcome study and organizational development project. The project attempted to achieve the following three major goals:

1. Build the capacities of individual programs to conduct outcome evaluations.

2. More clearly define desired outcomes for each site and produce data which demonstrate what in fact is being achieved.

3. Develop a "tool kit" (an evaluation planning process, data gathering instruments, and resource persons) which other programs can use to develop their own planning and evaluation systems.

This was thus not a traditional "outcome study" conducted by outsiders but rather an effort combining organizational development and outcome evaluation activities. The consultants discussed these goals with the teams throughout the course of the project, to make it clear to the teams what in fact the project was attempting to achieve.

II. The ten-step process used in the six sites:

The process used in the outcome study consisted of a series of:

1. meetings between the consultants and the six evaluation teams;
2. individual discussions between the consultants and team members;

3. independent work by individual team members -- especially the program coordinators -- and the consultants to develop and use evaluation instruments;
4. a special workshop on how to conduct an outcome evaluation; and
5. a special workshop on uses of computerized data-processing systems.

In the meetings between the teams and the consultants, the teams were typically presented with a set of open-ended questions, or set of goals to be achieved, which aimed at getting them to think through -- and define for themselves -- the central issues which need to be addressed when planning and implementing an outcome study. In this approach, the consultants intentionally avoided prescribing a standardized formula for all teams to adopt. This approach aimed instead at helping the teams to develop evaluation systems customized to their unique needs and resources.

The consultants and teams went through the following ten-step process over the period of late 1990 through the fall of 1991:

Step 1: Evaluators familiarize themselves with the programs: December 1990 - February 1991

The consultants familiarized themselves with the history of the programs through review of documents from previous evaluations, interviews with program coordinators, and through site visits to the workplaces themselves. (In some cases, tours of the organization/program occurred during the first site visits described in Step 4 below.)

Step 2: Program coordinators convene their evaluation teams and inform them about the evaluation which is planned for the coming year: December 1990 - January 1991

Each program funded under the MWEI is headed by a coordinator, typically a representative of the educational institution providing the actual education services. The coordinators to be involved in the Cycle 4 evaluation had agreed, in conversations with the consultants, that team members should represent the various interest groups involved in the workplace education program partnership -- workers enrolled in the program, education staff, union representatives, supervisors, and managers. To prepare for the work which the team would undertake during the course of the year, the program coordinators discussed the evaluation team concept with potential team members and then invited them to a preliminary meeting. In this preliminary meeting, the coordinators presented the goals of the evaluation, and prepared the team for the meeting of all the teams from the participating programs to be held in Boston on January 10th.

Step 3: Teams from six sites meet as a group: January 10, 1991

Representatives from all six sites met in Boston on January 10th. There they got to better know their fellow team members and were introduced to people representing similar interest groups in other workplace education programs from around the state. This was the first time that members of the various workplace education interest groups had the opportunity to meet with each other across programs. The consultants gave participants an overview of the above-described purposes of the outcome study along with a proposed schedule of activities for the subsequent nine months.

The teams were then challenged to work in various kinds of group activities to begin clarifying for their respective sites answers to the following fundamental question: "Who wants to know what information for what purpose?" (This question is central to an evaluation process developed by Professor David Kinsey of the Center for International Education at the University of Massachusetts at Amherst. See Kinsey in References)

More specifically, this question was broken down into sub-questions:

1. Who are the interest groups represented in your program?

2. What information do those various interest groups want to develop in this evaluation?

3. Why do they want to know that information?

These discussions produced the following kinds of statements:

1. "Who?": The key interest groups represented in the evaluation teams were upper-level management, supervisory personnel, unions, adult education staff, and employees participating in the program. Other parties not directly involved in the teams -- but who nonetheless might have an interest in knowing what the program was accomplishing -- were program funders, the families of participating employees, the communities of those employees, and workers not participating as students in the program.

2. "What information?" Initially, team members tended to say they wanted to know how the "self-esteem," "communication skills," and "productivity" of employees were impacted by the education programs. When encouraged to be more specific, they were able to give some examples of more-specific results -- particularly job-related abilities -- which they wanted to examine.

3. "Why?" The teams said that, overall, they wanted to know whether the program was "working." When pressed to be more specific about "why" they wanted to know this, they cited two key reasons: (a) to demonstrate to funders and management the value of the program, and (b) to clarify what needs to be done to improve the program.

Step 4: Each team further defines "Who Wants to Know What Information for What Purpose and How Will that Information Be Gathered?": February - March 1991.

The consultants at this point took essentially the same approach to getting the teams to further define what information they wanted to get in the study and how they would get it. However, because there was some variation in the two consultants' interactions with the evaluation teams, the two consultants' activities will here be described separately.

The two consultants took slightly different approaches to their work with the teams for the following reasons:

1. Two programs had not participated in any prior MWEI evaluations. Therefore, the amount of information already gathered about these programs was limited. This made it necessary for the consultants to take extra time to develop basic understanding of the issues and players at these sites before the work could really get underway.

2. Both consultants saw a value in making their interactions with the evaluation teams as "natural" as possible. This meant that each consultant was to use his or her best instincts and prior experience and try to respond to the unique interests and strengths of each team. It was felt that such a "natural" process would produce a more valid picture of how evaluation teams can work than would a team effort shaped by a predetermined, artificial set of "rules."

3. One consultant, as a resident of Massachusetts, had more-ready access to the program teams than did the second consultant, based in New Jersey. This gave the Massachusetts-based consultant a freer hand in scheduling site visits and otherwise communicating with the teams, thereby allowing her to be more flexible and responsive vis-a-vis the needs of each site.

At Hampden Paper and Aerovox, the consultant structured the evaluation activities more as a series of tasks the team had to accomplish. At South Cove Manor, United Electric Control, Kennedy, Boston City Hospital, the consultant structured the evaluation activities more as a series of questions the team had to answer. The tasks to be accomplished or the questions to be answered were comparable for each of the visits which the consultants made to the sites. Having completed the evaluation team process with these slight variations, the consultants agree that structuring the on-site meetings as as series of questions helps the team to focus on the work to be done, especially when team members are involved in evaluation work for the first time.

First Meeting with Hampden Paper and Aerovox

Each of these programs posed special challenges to the outcome evaluation which led the consultant to create special activities for the initial site visit at these two sites. Neither program had participated in a MWEI evaluation before. Consequently, there was no base of information on which to build the outcome study, and no prior experience for team members of working with an external evaluator or with an evaluation process that involved all the key players in the partnership. Furthermore, the Aerovox program was less than a year old, still developing its "sea legs" and had been unable to send a full team to the January 10 workshop. (Only the program coordinator and the Vice President for Human Resources attended.)

These conditions required the evaluator to use the first site visits to both programs as a way of developing an understanding of who the workers are, what/how the company produces, and how the workplace education program fits with company needs and goals. The site visit also served to build interest and trust in the new experience of carrying out their own outcome evaluations. The goal of the first team meeting at each of these programs was for these reasons threefold:

(1) to gather basic information about the programs;
(2) to increase the programs' interest in carrying out their own outcome evaluations; and
(3) to generate a working list of outcomes for each program and possible methods for measuring them.

At Hampden Paper, the consultant spent day #1 interviewing the company president and program coordinator, touring the facility, and conducting the first on-site meeting of the evaluation team where she reviewed the "Who," "What Information," and "What Purpose" schematic which was used in the January workshop as well as the answers to those questions which the Hampden team had generated. The consultant also attended an advisory board meeting where the evaluation plan was reviewed and approved.

At Aerovox, the consultant spent day #1 interviewing company managers and the program coordinator, touring the facility, and replicating on a small scale for the whole team the workshop described under Step 3. The Aerovox team was, in effect, introduced to the "Who," "What Information," and "What Purpose" schematic during this first site visit.

A fourth question of "How will information will be gathered?" was added at this point in the presentation to both teams, as a way of getting them to think through what kinds of data-gathering instruments they might develop. By asking both teams to develop answers to these questions, the consultant helped team members to:

(1) clarify the outcomes which are meaningful to their programs;
(2) begin to think about the instruments and processes which would best answer their questions;
(3) begin to think about who would collect, analyze, and report the data.

In both companies the teams brainstormed freely to identify what significant outcomes in their programs might look like. The consultant helped the teams to refine and narrow their definitions and recorded them.

Hampden Paper

At Hampden Paper the evaluation team identified many outcomes which were either job-specific, of particular interest to the union, related to program development, or related to fostering an environment of greater support for education as a precursor to the certification program. These are the outcome questions which the team members chose to focus on:

- Do workers readily enroll in and attend classes, and if not, why not? (This question will have more relevance as the certification program gets underway. Enrollment and attendance in classes will be seen as valuable outcomes in themselves. Reasons for lack of enrollment or attendance will be critical variables for program staff.)
- Do students move up the job ladder in the company as a result of participating in the education program? (This question will have more relevance as the certification program gets underway because one goal of the certification program is to facilitate promotion.)
- Do students read production tickets accurately?
- Do students read measuring devices accurately?
- Do students write accurate work reports?
- Do students ask more questions on the job?

- Does accurate reading and reporting impact scrap reduction?
- Do students:
  - -- know the benefits that are available through the union?
  - -- understand the grievance procedure ?
  - -- identify problems on shop floor as union concerns?
  - -- understand the union contract?
  - -- have an interest in becoming a steward?
  - -- understand the union contract?
  - -- understand how the union supports workplace education?

Aerovox

In this introduction to program evaluation in general and outcome evaluation in particular during the first site visit, the team at Aerovox found it somewhat difficult to distinguish between program/process variables (like involving supervisors in the program) and outcomes. The consultant realized that it was difficult for any team -- particularly a new one like that at Aerovox -- to in one meeting both learn about the fundamentals of outcome evaluation and actually begin planning the details of such an evaluation. The consultant therefore used the initial Aerovox meeting as an opportunity for team members to begin brainstorming responses to the "Who, What Information, Why, and How" questions. In subsequent weeks the team, under the leadership of the program coordinator, had additional time to further refine their answers. Within a few weeks, then, the Aerovox team had become clearer about the distinction between "process" issues and "outcome" questions. They came up with the following job-specific outcome questions:

Can workers who are students:
- describe their jobs?
- inspect parts of their equipment?
- practice maintenance of their equipment?
- practice cleanliness of equipment/surroundings?
- take safety precautions?
- understand the purpose of having an MPI (manufacturing process instruction)?
- follow an MPI from their own section?

- follow MPIs from other sections?
- read graphs?
- construct a graph?
- understand SPC procedures?
- plot an SPC chart?
- understand their "right to know"?

Both teams agreed that the data should clarify how the program might be improved and also be used to help the program argue effectively for funds from potential funders. Neither company needed the data to demonstrate internally whether the investment in education was worthwhile or not in order to continue the program. Both began from the position that education is worthwhile, had made substantial cash investments in their programs, and were planning to continue that investment into the coming year. However, both teams were interested in understanding the more-than-obvious ways in which their respective investments in education were paying off.

The teams agreed that the information should be gathered through checklists, surveys, and interviews. These instruments would be used with supervisors, union leaders, and, most importantly, students themselves. The teams were concerned that the data collection not be too time-consuming. In addition, data would be gathered from already existing sources at each site. At the conclusion of the first team meetings at Hampden Paper and Aerovox, the consultant agreed to draft samples of protocols which would reflect the outcomes described above and send them back to the teams for revision.

First Meeting with Kennedy Die Castings, South Cove Manor, Boston City Hospital, and United Electric Controls

Based on the program information developed in Steps 1 and 3, the consultant prepared a "grid" listing "Who," What Information," "What Purpose," and "How" as it might relate to an outcome study for each of the four teams he was to work with. The grid showed possible interest groups ("Who") to be involved, what type of information ("What Information") they might want to know, "What Purposes" would be achieved by getting that information, and what kinds of data-gathering activities ("How") might be used to get the data. Each team (especially the coordinator of each team) was asked to review that team's grid, to get a clearer idea of what the outcome study might encompass and to be prepared to add or delete details from the grid to make it more relevant to the team's situation.

In site visits during the period of February 21st to March 6th, the consultant met for 2-3 hours with each of the four teams. Each team was asked to now "fill in the blanks" in its grid, to define as specifically as possible the "Who," "What Information," "What Purpose," and "How" for its outcome study. Teams were challenged to come up with specific indicators of the kinds of "communication skills" and other outcomes they wanted the education program to achieve.

The teams responded well to being encouraged to "be specific," possibly because it now gave them something concrete to hold onto as they got into this new task of developing their own outcome evaluation. For example, the South Cove Manor team agreed that, overall, the study should help determine whether the education program was contributing to the nursing home's policy of "restorative care." To answer that larger question, information would be gathered to answer the following related questions:

1. Has there been a decrease in provider-resident conflicts? Has there been an increase in positive provider-resident interaction?

2. Do providers understand and report (in English) changes in resident status? (And was appropriate follow-up action taken by the charge nurse?)
3. Are participants using English for an increasing number of work-related and non-work-related purposes? (These uses of English would be taken from various lists developed by students, the state nursing association, and other sources.)

In the industrial setting of United Electric Controls, the evaluation team decided that, overall, the study should help determine whether the education program was contributing to the company's goals of introducing innovations like "reliable methods," teamwork, and cross-training. To get at that information, the following more-specific questions related to "reliable methods" would be some of the focal points of the study:

1. How well can workers understand job-related documents like yearly performance reviews, blueprints, and the X-matrix?

2. Do workers communicate effectively with ethnic groups other than their own?

3. Do workers work more effectively together in team situations like CEDAC groups, action centers, production work cells, and cross-training activities?

At a meeting of the Kennedy Die Castings team on February 21, team members first agreed to focus on a combination of job-related abilities and personal goals, the latter of which were identified by the students as important. The team then brainstormed numerous examples for each category of job-related and personal outcomes and then decided to narrow down the list by identifying the job-skill-areas to pay the most attention to. Some of the resulting "outcome questions" were as follows:

1. Do students better understand and carry out existing and new procedures in the plant, including: (* = highest priority)
-- Sequencing*
-- Trouble-shooting/problem-solving (understanding causes of defects/problems and taking needed action)*
-- Running the machines*; ability to operate all machines
-- Communicating with supervisors and fellow employees*
-- Safety procedures (both machine-specific* and plant-wide)
-- Quality assurance procedures (SPC, quality checks...)
-- General shop rules, structure, benefits (covered in employee handbook)
-- Math-related tasks (for production cards/tags)

2. Are students better prepared to:
-- Get new/other jobs

-- Go on to further education and training (inside or outside the plant)

3. Have students acquired personal skills needed to perform tasks related to:
-- Income tax
-- Citizenship/U.S. history
-- Health care
-- Paying bills[1]

In addition to providing focal points for the outcome study, the above process of clarifying the intended outcomes of the education program was seen by the education providers as a model of a goal-setting process which had other uses at Kennedy and at the other worksites where the education provider operated. Specifically, a similar goal-setting process was seen as a useful way of getting all players in the program to give input and thereby buy into the program. At Kennedy, the program's instructor took this process a few steps further by, first, meeting for an hour with students to ask them to develop their own list of outcomes to focus on in the education program. The instructor then met with supervisors and human resources staff to get them to develop their own set of program goals. The various lists of "outcomes" or "goals" produced in these goal-setting sessions with the evaluation team, the students, and supervisors and human resource staff were then synthesized and became the basis not only for the data-gathering instruments to be used in this outcome study but for a refinement of the curriculum itself.

The team at Boston City Hospital likewise chose to focus on a combination of job-related and personal-development goals. Union-related outcome questions were also identified. Examples included:

Job-related outcomes:
1. Does the nurses' aide participate more fully in staff meetings by:
  -- Speaking about the topic
  -- Appearing "engaged"
  -- Giving concrete suggestions for improved patient care?

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[1] These activities were supported directly by the employer.

2. Does the aide appropriately use work-related documents by, for example, demonstrating an understanding of the content of forms used on the job?

3. Does the aide communicate appropriately with supervisors:
-- When dealing with emotionally-charged issues
-- In meetings between supervisors and aides
-- Using conflict-resolution skills?

Union-related outcomes:
1. Does the aide read -- and contribute to -- the union bulletin?
2. Is the employee more willing to run for shop steward?

Personal-development outcomes:
Has the student improved his/her academic skills and gone on to further academic training, job-training, or job-promotion, as evidenced by:

-- Has the employee earned a GED?
-- Has the employee applied for higher education or training programs, including:
  - Technical training programs for para-professionals;
  - Pre-tech classes (beyond ABE)
  - College
-- Has the employee been promoted (either within BCH or outside) as a result of skills (e.g., reading, writing, oral English) gained in the program?

Thus, by early March, all four of these teams had come up with a working set of outcomes to focus on.

In response to the question of "What Purpose" these evaluations would serve, a common purpose cited by all four teams was to know whether the investments made in the program were worthwhile. In turn, the teams could use this information to strengthen their proposals to funding sources while at the same time clarifying how to improve the program.

In terms of "How" this information would be gathered, all four teams agreed that some of this information could be gathered through interviews and/or questionnaires with supervisory personnel and with students themselves. The teams would also consider using simulations, reviews of documents, and -- in the case of South Cove Manor -- interviews with residents and a simulated flow-sheet exercise. It was agreed that the next step in the process would be for the consultant to draft samples of these questionnaires, interview guides, and other instruments and then send them back to the teams for revision.

As facilitator of these initial team meetings, the consultant recorded the teams' responses on flip-charts and subsequently sent summaries of the discussions to the respective teams. These summaries in effect served as statements of commonly-agreed-upon purposes, focal points, and data-gathering activities for each team's outcome study.

It was at these initial site visits that the consultant also took the opportunity to take a tour of the worksites conducted by key members of the respective teams.

Step 5: Teams agree on details of the data-gathering activities to be used: April - May, 1991

As in Step 4, the two consultants followed essentially the same approach to helping their respective teams finalize details of how data would be gathered. For comparative purposes, the two consultants' activities are described separately, as follows:

Second Meeting with Hampden Paper and Aerovox

• Preparing for the Second Meeting

As the consultant reviewed the data gathered during the first site visits to both Hampden Paper and Aerovox, a similarity between the companies and their respective education programs emerged. Although the two companies implemented their vision in different ways, they both saw education as a long term strategy for helping workers adapt to changing production methods. They were both on the path to becoming the "high productivity" workplaces which produce customized, high-quality product on high-tech machinery with a flexible workforce. This similarity guided the development of the data-gathering instruments at these sites.

In its 1988 report, "Workplace Basics: the Skills Employers Want," the American Society for Training and Development (ASTD) suggested that there are seven groups of skills in which workers in the high productivity workplace must excel. They underscore that effective workplace education is more than the traditional three R's adapted to the workplace, and also more than narrowly-defined job-specific training. The skill groups which workplace education should now focus on are:

(1) foundation -knowing how to learn
(2) communication - listening and oral communication
(3) adaptability - creative thinking and problem solving
(4) personal management - self esteem, goal setting, motivation, and personal and career development
(5) group effectiveness - interpersonal skills, negotiation, and teamwork
(6) influence - organizational effectiveness and leadership
(7) competence - reading, writing, and computation

The evaluation teams at both sites had agreed that these very skills were essential components of the change their programs want to achieve. But it was not clear how to define or measure these skills. Between the first and second site visits, the consultant had several conversations with the program coordinators about the importance of capturing these outcomes in addition to the job-specific outcomes which the teams had identified. As a result of these conversations, the consultant developed a draft questionnaire using the ASTD skills areas as a framework, and adapted the draft to each company's needs.

The consultant identified three or four behaviors for each of the "foundation," "communication," "adaptability," "personal management ," "group effectiveness," and "influence" skill groups. The following examples of behaviors which correspond to the ASTD skill areas are taken from the draft "worker self-reports" which the consultant submitted to the evaluation teams at Hampden Paper and Aerovox. (The phrasing differs for the supervisors' reports where a supervisor is asked to comment on someone else's behavior.)

- "Foundation" was broken down into: "I like to learn," "I am not afraid to ask questions about something I don't know," and "I know where to go for information to answer my questions (to a book, a person, etc.)."

- "Communication" was broken down into: "I understand directions;" "I listen to my co-workers' questions;" "I listen to my family members: spouse, children, other family, friends;" "I ask questions clearly;" and "I need less translation from my native language into English."

- "Adaptability" was demonstrated by: "I don't wait for someone else to tell me what to do. I figure it out for myself;" "I think about new/better ways to do things at work;" and "I discover and apply new/better ways to do things at work."

- "Personal management" was broken down into: "I value my opinions and contributions;" "I offer my opinions to others;" "I plan ahead;" "I am comfortable working alone;" and "I am a more active member of my community -- my union, church, community center, citizenship group, other."

- "Group effectiveness " was demonstrated by: "I work well with my co-workers;" "I have a sense of team work and team identity;" "I negotiate my needs and the needs of my group with my supervisor;" "I am supportive of others' efforts to increase their skills;" and "I am supportive of others' learning efforts at home -- my spouse, children, other family, friends."

- "Influence" was demonstrated by: "I understand the importance of quality awareness in the company's strategy to improve production and sales;" "I understand what SPC is;" "I understand the role that SPC plays in the company's strategy to improve production and sales;" "I understand the relationship between the parts of the work process I perform and the whole production process;" "I understand the long term goals of (company name) and the essential role that education plays in making these goals a reality;" and "I understand that it is possible for me to advance in the company as I increase my skills."

- "Competency" was broken down into the reading, writing, and math competencies that the teachers define for each of the classes they teach.

(This means that competencies differ for ESL, ABE, SPC math, and computer training courses.)

Thus, this second set of outcomes was added to the job-specific outcomes which the teams had identified as important to measure during their first evaluation team meetings. This second set of outcomes came to be known simply as the "ASTD categories." Although the competencies are technically a part of the ASTD framework, in the cases of Hampden Paper and Aerovox, they formed a third section of the sample questionnaires.

Thus, the sample questionnaires which the consultant drafted and submitted to the evaluation team members at Hampden Paper and Aerovox for review prior to the second team meetings consisted of three parts: (1) the job specific skills identified in the first meeting; (2) the "ASTD categories" described above; and (3) competencies in reading, writing, and math defined class-by-class. The instruments were designed to collect information on similarly-defined variables in similar formats from different respondents, thereby providing a system of checks and balances on the data. Workers and supervisors would be the main respondent groups for the variables listed above in both companies.

In addition, Hampden Paper is unionized and union leadership made it clear in the first team meeting that it was interested in understanding the impact of the education program on union-related issues. As a result, the consultant drafted a union checklist which assesses worker perception of program impact on:

-- Awareness of the range of benefits offered through the union
-- Identifying problems on the shop floor as union concerns
-- Understanding the grievance procedure
-- Interest in becoming a steward or union officer
-- Desire to negotiate benefits on union contracts
-- Understanding the union role in creating and supporting your workplace education program
-- Understanding the terms of your union contract (as reflected in the curriculum or from other sources)

Team members were asked to revise these drafts in preparation for the second meeting.

• Goals of the Second Meeting

The goals of the second meeting were to:

(1) finalize the outcomes to be measured;
(2) agree on the data-collection formats;
(3) designate who will collect the data;
(4) decide who will analyze and report the data under what time line;
(5) clarify how the data will be used (how can it lead to some useful action)

• Results of the Second Meeting

The teams at Hampden Paper and Aerovox achieved similar goals in their second meetings. These include:

1. The teams finalized their list of outcomes:

At Hampden Paper the team agreed to put aside its initial interest in enrollment, attendance, and promotion as indicators of program success. These indicators are more linked with the new, soon-to-be-implemented certification program than they are with the current program. These outcomes can be explored once the new program is underway. At Aerovox, the coordinator, with input from all the team members, presented a working list of job-specific outcomes which would become the basis of the worker and department head questionnaires.

2. The teams agreed on a questionnaire format:

-- The questionnaire format in both programs was limited to multiple-choice questionnaires, supplemented by a few open-ended questions for supervisors. Although the language varied for the two programs, the questions essentially asked whether the respondents had "stayed the same," "improved a little," or "improved a lot." This format permitted the greatest amount of data collection in the least amount of time. The amount of time required to collect data was a real concern for both teams, especially the amount of time required of the supervisors. Students still enrolled in a program could be asked to complete a questionnaire as part of a class session. Students not currently enrolled posed a problem similar to the supervisors -- how much time could the evaluation project legitimately ask of them?

-- Both teams agreed to have:

(1) a student self-report to be completed by as many students as possible, those formerly and currently enrolled;
(2) a supervisor questionnaire to be completed by any supervisors or department heads having students in their charge. The teams agreed that the supervisor questionnaire would cover essentially the same areas as the student self-report but would not include questions on educational competencies or on areas of learning that impact a student's life outside of work, on family or community. It would, however, include additional questions on suprvisors' attitudes toward the education program in general. Both teams agreed that the supervisors would respond in the aggregate and not for each individual in their charge. It was decided that responding for each individual in their charge would be too demanding at this time. The process of developing the supervisor questionnaires was genuinely collaborative. A supervisor at Hampden Paper took great interest in the supervisor checklist , and revised it substantially before submitting it to the team for review. Similarly, at Aerovox, the coordinator shortened the questionnaire for department heads with input from team members. The coordinator at Aerovox also had the added benefit of reviewing the Hampden Paper revised supervisor questionnaire before finalizing the Aerovox questionnaire. Thus, in this phase of the evaluation, there was collaboration between programs as well as within them.
(3) at Hampden Paper all workers would also complete the union checklist.

3. The teams agreed to try to generate statistical data:

It was agreed at this time that the kind of data that the two programs would be generating and the amount of it -- from an estimated eighty students and eight department heads at Aerovox, and twenty students and seven supervisors at Hampden Paper -- would make statistical analysis a particularly suitable option. Such analysis could produce useful information through cross tabulation by student age, gender, department, job title, language spoken at home, ethnicity, time in company, time in U.S., education history, and reasons for entering a workplace education program. The teams agreed that basic statistical data -- frequencies, cross tabulations, and simple tests of significance -- would make the data more appealing in the eyes of potential funders, whether the funder is the company itself or an outside agency. The computer training described in Step 7 below prepared the program coordinators to think about and work toward long-term systematic data collection and analysis.

The coordinators took on the main responsibility for collecting, programming, and analyzing the data, with help at Hampden Paper from a student in the program who is particularly interested in computers. Data collection and analysis were scheduled to be completed by mid to late summer.

4. The teams discussed how the findings would be reported:

It was not clear how the data could/would be reported or used until they were available for analysis. Both teams were concerned about confidentiality and agreed to code their protocols so that only the coordinator would know the identity of the respondents.

Second Meeting with Kennedy Die Castings, South Cove Manor, Boston City Hospital, and United Electric Controls

In the month that followed his first visit to the above four programs, the consultant drew up drafts of the questionnaires, interview guides, and simulations which the four teams had agreed to develop. These drafts were circulated to team members for their review, and then during the period of April 9th to 11th each team met again to decide how these and other data-gathering instruments would be used.

In these meetings, the consultant again served as facilitator of two-hour meetings for each group. Team members were walked through a series of questions aimed at getting the teams to think through and commit themselves to actions which the data-gathering process would require. These questions and discussions were as follows:

Question #1: Which data-gathering activities will we use?

In most cases, the teams agreed to gather data through a combination of questionnaires (or interviews) aimed at participating workers and their supervisors. These instruments were selected in part because it was felt that they -- in contrast to observation of workers on the job or other data-gathering techniques -- could elicit data without requiring a large amount of time of either the informants or the data gatherers.

South Cove Manor also decided to use classroom simulations in which students would be posed with a problem situation taken from their jobs and then asked to demonstrate how they would solve that problem. Although this method was more time-consuming for those involved, it was felt that it would elicit richer data while also, in effect, serving as an educational activity for students. South Cove Manor also decided to develop a flow sheet exercise in which students would be asked to complete a sample flow sheet to demonstrate their ability to record patient status on a particular day. And the South Cove team also agreed to interview selected English-speaking residents at the nursing home, to ask them to assess how well the ESL students use English in their interactions with the residents. At United Electric Controls, the human resources officer said he might want to look at the "Valued Ideas" suggestions submitted by workers to see if there had been any increase in the quantity or quality of ideas submitted by ESL students. (This data-gathering method was later shelved by the UEC team as priority was given to questionnaires for students and supervisors.)

Question #2: For each data-gathering activity, what will be the content and format?

Each team reviewed the drafts of questionnaires, interview guides, and simulations which the consultant had circulated to team members prior to this meeting. Team members now took the opportunity to make suggestions -- in some cases minor changes and in some cases major revisions -- about what the questions should focus on (that is, the "content") and how the gathering of the data should be organized or "formatted" (for example, layout of questionnaires, steps for the simulations).

The content generally focused on the kinds of outcomes identified in Step 4 above. However, as the teams got further into the work of designing data-gathering instruments, they began to realize that their time was limited and they would have to limit the amount of data to be collected. For this reason, the teams tended to narrow down their focus to job-related outcomes rather than outcomes related more to learners' personal development.

Question #3: How will the data be used?

This question aimed at getting the teams to decide on such issues as confidentiality, whether the results would be reported in aggregate or by individual, and whether data would be categorized in any special way (such as how long the student had been in the program, or the students' place of origin, educational background, or job category).

On the question of confidentiality, all teams agreed that the identity of students would be kept confidential. Only the program coordinators and teachers would know which student received which score. This was done with full approval of the company managers who said that they just wanted to know how well the program was working rather than know how any one student was doing. It was agreed that this would encourage the students and supervisors involved in the study to be more frank in their answers. The teams agreed to make this clear when explaining the study to the participants.

It was also agreed that, by allowing the relatively "neutral" coordinators and instructors to know the students' scores, the education staff could counsel the students and revise the curricula to help meet student needs identified in the data. This arrangement would also allow the education staff to track student performance over time.

In terms of categorizing results by students' job, background, and so forth, most teams agreed to merely consider the question and wait until the data were gathered before deciding whether any particular categorizations would be useful. One team said that it wanted to avoid any hint of ethnic or racial discrimination and thus would avoid categorizing results by ethnic criteria. At South Cove Manor, the team thought that it might be useful to compare the performance of, say, mainland Chinese workers and Hong Kong- or Taiwan-born employees. SCM said it might also consider comparing the results of students with limited formal education with those of more-highly-educated workers.

Question #4: How will the data be collected?

The teams generally agreed to now work with the consultant to do last-minute revisions to the drafts of the agreed-upon instruments before field-testing them with a sample of informants. If necessary -- and if time permitted -- the teams would then again fine-tune the instruments and then use the instruments to gather the first round of data by approximately mid-May.

Once the data were in hand, the teams would circulate the data among team members to allow them to study the data before analysis and reporting of the data were carried out.

Question #5: How will the data be analyzed and reported?

The teams generally agreed to leave the "dirty work" of tabulating and summarizing the raw data in the hands of one or two key people on the team, usually the coordinator and/or instructor. The teams seemed to feel that these people had the most time to devote to the process and perhaps the best day-to-day knowledge of both the students and the process of assessing their skills.

The coordinators seemed willing to take on this extra job because they saw value in producing a clearer picture of what their programs were accomplishing. They were often concerned, however, about the additional time that would be required of them. They also expressed some concern that they might lack the technical skills required to properly interpret and present the data.

It was in response to this question about the coordinators' technical skills that the consultants organized a special training workshop for four of the coordinators. (See Step 7, "Special Training Provided on Data Analysis," below.)

At this point it was agreed that, until the data were actually in hand, it would be difficult to be certain about how the data would be analyzed and reported. The teams thus agreed to wait until after the data were collected to decide exactly how the information would be used.

Question #6: What resources need to be committed and under what time-line?

The teams agreed that the primary resources required for the above data-collection and analysis would be the staff time of those involved and some additional computer and clerical resources. It was hoped that the first round of data could be gathered by mid-May and then analyzed by mid-June. Preparation of reports would come by the end of June.

Step 6: Teams gather data: May - September 1991

The actual gathering of data in the six programs went more or less according to the schedule agreed on above. However, some of this data-collection was complicated by unforeseen staff changes and interruptions of work schedules. Specifically, the coordinator of the Boston City Hospital program left his job before the data could be collected, leaving that task in the hands of other team members who had to quickly organize themselves to take on the responsibility of distributing, gathering, and analyzing questionnaires. These BCH team members also had to deal with the fact that the hospital was laying off and transferring workers and supervisors, thus making the task of tracking down these informants and distributing the questionnaires to them that much more difficult.

Similar temporary layoffs and schedule changes around this time affected a number of other sites. The primary result of these disruptions was a reduction in the numbers of questionnaires distributed and, thus, a reduction in the representativeness of the data actually gathered. Closing down or slowing down some programs for summer, the scheduling of the computer training in June, and workers taking vacations also slowed down the data-gathering process.

The following describes the data-collection processes at each of the sites.

Hampden Paper

The three questionnaires which the Hampden Paper evaluation team agreed to use in its outcome study were ready in late June, after classes ended for the summer. The three questionnaires were: (1) the student self report (three slightly-different versions of which were developed to make them relevant to the three classes which Hampden Paper offers -- combined ESL/ABE; GED; and computer training); (2) the supervisor report ; and (3) the union member report. All students are union members. Those who completed a self report also completed a union report . The content of these questionnaires is described in Steps 4 & 5, above.

The coordinator asked individual students to complete their questionnaires when she sought them out at their work stations, or when she saw them elsewhere in the plant. Students completed the questionnaires in the classroom at their convenience, with the help of the teacher/coordinator if they needed it. Data collection with the students continued slowly with a total of twenty completing questionnaires. Supervisors were given their questionnaires by the supervisor member of the evaluation team. Responses were received from all seven supervisors who had students in their departments. The student self-report covered three areas: job- specific skills; "ASTD categories", and educational competencies. The supervisor questionnaire covered job-specific skills and other areas related to supervisors' understanding of and support for their education programs.

A student in the computer class at Hampden Paper who was not a member of the evaluation team helped the coordinator develop the computer program on a Hampden Paper database which would be used to analyze the evaluation data. He also punched in and analyzed the data with the coordinator. This was done with the full support of the company president who encouraged worker participation in the evaluation project, especially because it was seen as developing skills which are relevant to the workplace. Involving students more fully in evaluation activities like this was seen as one way to take the burden of the evaluation work off the coordinator and build worker investment in the program. This student had military duty for two weeks in July, however, and this contributed to a slow-down of the data-gathering process. Data were collected until the middle of August.

Aerovox

The Aerovox outcome evaluation consisted of two questionnaires -- the student self-report questionnaire and the department head questionnaire. The student self-report varied slightly for students enrolled in different classes: ESL, ABE, GED, or SPC math. The student self-report covered three areas: job- specific skills; "ASTD categories," and educational competencies. The department head questionnaire covered job-specific skills and other areas related to department heads' understanding of and support for their education programs. The content of these questionnaires is described in Steps 4 & 5, above.

The education program shut down, along with the company, for the first two weeks in July. When workers and program staff returned, the coordinator finalized the questionnaires and soon began data collection on students who had already completed a class -- about sixty-five people. She waited until the end of August to collect data from another twelve workers currently enrolled in a class so they would have the benefit of a full class cycle before they responded. Students who had completed a class filled out their self-reports at their convenience in the classroom with the coordinator's help if they needed it. Students currently enrolled in class filled out their self-reports at the end of a class period. Nine department heads were given their questionnaires at the same time as the enrolled students. Department heads were to fill out their questionnaires at their convenience. As of mid-September only two department heads had completed their questionnaires, most likely because the company was under extreme pressure to keep up with production while the workforce was cut back to a four-day work week. With some prodding by the program coordinator, and additional explanation of why the evaluation was important, the department heads finally completed their questionnaires.

South Cove Manor

In May, the South Cove Manor team gathered its data in the following activities:

-- Questionnaires for English-speaking supervisors and nurses: Supervisors and licensed staff who had to rely on English as their means of communicating with other employees answered sixteen questions about their interactions with students. The questions focused on the communications involved in students' reporting of changes in patient condition and supervisors' responses to those reports. Eight supervisory staff completed evaluations for twelve students, with each student being assessed by at least two different supervisory personnel.

-- Self-assessment questionnaires for students: Students completed a Chinese-language questionnaire in which they rated their own abilities to perform sixteen tasks required for effective interaction with residents in English. They were also asked to describe areas where misunderstandings occur between them and English-speaking residents. A third set of questions focused on how well the students can report changes in patient condition to their English-speaking supervisors and charge nurses as well as how well these supervisory staff respond to the students' reports. Students also assessed how much the ESL program had helped them accomplish personal goals like "making new friends," "understanding American culture," and "getting more education." Twenty-three students completed these questionnaires.

-- Interviews with residents: Eight English-speaking residents were interviewed about their interactions with the ESL students. This interview was a short one, with only a half-dozen questions. Residents were asked, for example, whether a particular student speaks English when helping with bathing, dressing, and other daily activities. Twelve students were assessed through these interviews.

-- Simulations: Nineteen of twent-two students participated in classroom simulations organized as follows: First, instructors explained the situation in Chinese, telling the student to perform a simulated task requiring the use of English. (For example, in one case the student was told to interact with an English-speaking patient while shaving him and then report the patient's status to the charge nurse.) In this case, the "patient" (played by a staff member) meanwhile had his own instructions to say things in English about "a skin rash" and other issues which the student had to respond to. The student was rated on his/her ability to perform 30 different tasks on a scale of "1" (unacceptable), "2" (incomplete), or "3" (acceptable).

-- Flow sheet exercise: Twenty-one students were presented with a typical situation in which they were to help an elderly patient groom herself, use the bathroom, and take a walk. The students were then asked to fill out -- in written English -- a daily flow sheet for that patient, using a code to describe what the patient did and how well she did it. The students were then rated on how accurately and clearly they completed their respective flow sheets.

Kennedy Die Castings

At Kennedy Die Castings, data were gathered from one supervisor and ten students at two points -- June and August -- in one of the education program cycles.

Due to staffing changes within the company, only one supervisor was available to be interviewed, and he twice provided ratings for ten students' abilities to perform seven job tasks. (The team decided to use an interview format for the supervisor rather than distribute questionnaires, because previous attempts to get supervisors to respond to questionnaires about the education program had produced a meager response from supervisors.) This time, the supervisor fully understood the purpose of the interview and gave it full, careful attention. He in fact helped the instructor to field-test two different versions of the interview -- a longer version and a shorter one -- before it was decided that the shorter one be used. In the interview, the supervisor used a scale of 0-7 to rate workers' abilities to "interact with work peers," "recognize and identify quality defects," "participate in group problem-solving on the floor," "participate in training programs," and "comprehend and follow directions." His two sets of responses provided data which could be used to identify changes in students' abilities between June and August.

Ten students were twice asked to complete a questionnaire to assess their abilities in the same job-task areas covered in the supervisor interview. When the questionnaire was first distributed in June, the instructor wanted to assure learners of confidentiality and thus told the students not to put their names on the questionnaire. When the same questionnaire was distributed in August, however, the students said they didn't mind putting their names on the document and did so. The data from the two uses of the student self-assessments could thus be used for comparative purposes only in aggregate form and not on a student-by-student basis .

The ten students completed their questionnaires during class time. These students represented a mix of English-language skill levels. Students were encouraged to be honest in their self-assessments. For each skill-area, students could choose from "I don't do it at all," "I can do it a little," "I do it very often," or "I do it all the time." The instructor encouraged more-advanced-English-speakers to work with their less-advanced compatriots to explain terms used in the questionnaires.

The instructor also tried -- with the help of the supervisor -- to use a simulation exercise as another means of gathering data about students' skills. (The supervisor even served as a guest instructor in some classes in an attempt to prepare the students for the tasks they would be assessed on in the simulation.) However, this attempt at using a simulation showed that the complex nature of the skills to be assessed was difficult to capture in a simulation, so the simulation idea was shelved until a future time when more attention could be given to designing a more-meaningful version. (See the Kennedy section under Step 8 below for further discussion of this attempt to use a simulation activity.)

United Electric Controls

In the period of July to September, four United Electric supervisors completed questionnaires in which they assessed the abilities of a total of fourteen employees. The questions focused on how well students were using English-language communication skills to participate in several innovations recently introduced by the company to shift decision-making into shop-floor employees' hands. Several of the questions dealt with problem-solving team activities like "action centers," "production work cells," and "CEDAC groups." Other questions asked how fully the students participated in cross-training activities, the "Valued Ideas Program" (in which all employees are encouraged to submit suggestions for improving the workplace), and "ergonomics" (a system for making best use of workers' body mechanics). The supervisors checked how well the student performed the given tasks, with choices ranging from "Employee can't do this at all." to "Employee does this well."

Nineteen students were able to complete self-assessment questionnaires, with an additional student unable to do so due to limited literacy skills. The questionnaires focused on essentially the same job-related skill areas covered in the supervisor's questionnaire. Students chose from answers ranging from "I can't do this at all." to "I do it well."

Boston City Hospital

Due to personnel changes occurring throughout the Boston City Hospital system at the time the data were to be collected, and because the program coordinator left at the same time, it was difficult for the evaluation team to pull together the students and supervisors for whom questionnaires had been designed.

Despite these logistical limitations, a total of seven students completed self-assessment questionnaires. They assessed how well they could perform a dozen or so job tasks like "handling emergencies and conflicts," "communicating with supervisors," "filling out records," and "anticipating needs and taking initiative." They also assessed how well they could deal with three union-related tasks: "reading the union bulletin," "writing an article for the bulletin," and "speaking about the education program at union meetings." They also described where they currently stood in terms of achieving personal goals like pursuing further education, training, and job-promotions.

A total of six supervisors completed questionnaires assessing the skills of six different students. These supervisors assessed the abilities of students to handle essentially the same dozen job tasks covered in the student questionnaire.

Step 7: Special training provided on data analysis: June 1991

In April, the coordinator of the South Cove Manor program asked whether the consultants could in some way help him develop a computerized system for tabulating and analyzing the data his team was about to gather. In response to this request, and in response to the emerging need for computerized analysis of the data at Hampden Paper and Aerovox, the consultants arranged to have a special half-day training course set up for any coordinators interested in learning how to use the Statistical Program for the Social Sciences (SPSS) computer software. This workshop was conducted by Alice Oberfield, a statistics specialist, on June 18, 1991.

Coordinators from the South Cove Manor, Kennedy Die Castings, Aerovox, and Hampden Paper programs participated in this training which was tailored to the outcome study needs of the programs represented. Participants were led through a series of activities in a four-hour period which familiarized them with the uses of the SPSS system, how to code their outcome data and use frequencies, cross tabulations, and Chi-Square tests of significance on them. They left the workshop with some basic skills they would need to further explore and use the SPSS system to analyze the data they were gathering back home.

Step 8: Data analyzed: June - November 1991

From June through November, the teams tabulated and analyzed the data they had gathered in Step 6. This was done in part with input from the two consultants who first reviewed the data which had been gathered and then gave feedback to the teams. The consultants provided this feedback via telephone conversations with program coordinators and in the third set of on-site meetings the consultants held with each evaluation team. (Two teams -- Hampden Paper and Aerovox -- required a fourth meeting as well.) The following is a description of the data gathered by each team and how it was interpreted by the team:

Hampden Paper

By late September, the coordinator at Hampden Paper had a sample of her data analyzed on a database software program commonly used in the company for a variety of purposes. The coordinator had been advised by the company's computer specialist that this database program would readily serve the outcome study's need to compute frequencies and cross tabulations. In fact, the program turned out to be cumbersome. Given the other option of starting over again from scratch on SPSS at this point in time, the coordinator chose to labor with the paper-heavy database program, and to complete her analysis of the data by the end of October.

The preliminary results of the Hampden Paper outcome study showed that both workers and supervisors observe significant improvement among students on selected skills, that workers tend to report higher rates of improvement than supervisors in those skill areas, and that participation in the program has improved the "labor consciousness" of workers. (Improvement is here noted as the total percentage of "changed a little" and "changed a lot.") The consultant met with the coordinator alone during the third on-site visit and helped to interpret the preliminary data. The complete results were reported to the evaluation team at the fourth and final team meeting. The coordinator then met with the company president (who also served as a member of the team) to discuss any items of interest that may not have been covered during the fourth visit. The coordinator then wrote the final report.

At Hampden Paper, twenty students and seven supervisors completed questionnaires. Nine of the workers are enrolled in the ABE program, five are enrolled in the GED program, and six are enrolled in the computer skills course. The final data analysis included cross tabulations by class as well as by department. The questionnaire which was given to students gave them the option to chose as answers: "pre" (that is, had the skill coming into the class); improved a little; improved a lot; stayed the same. The findings of the outcome study at Hampden Paper are summarized below. (The complete report of the program coordinator is contained in Appendix A, under separate cover.)

In general, the Hampden Paper students reported consistent and noteworthy improvement in job-specific skills and in the ASTD categories, and demonstrated a noteworthy increase in "labor consciousness" in the responses to the union questionnaire. Supervisors noted change, too, although less of it than did the students. The differences between the student and supervisor responses in most categories were small enough to see that there is substantial agreement about what the program is achieving. Reasons for discrepancies between supervisors' and students' responses are discussed in a previous section of this report . (See pages 16-18.) But in the Hampden Paper case, there is an additional methodological reason for the discrepancies. While students had the option to answer "pre", that is, had the skill already coming into class, supervisors were not given the same choice. Thus, if a supervisor did not note change, it might be because the students already had the skill, not because the students did not learn. Taking this into account, the following figures, taken from the coordinator's report, for a sample of the most important job-specific skills studied, demonstrate more congruence between supervisors' and students' responses than not. The sorting of the data by department and class provides insights into the effectiveness of the program.

It is interesting to note that, in her analyses, the program coordinator chose to include some variables from the ASTD category of skills in the job-specific category. This indicates a change in thinking about what job-specific means.

Job-Specific Skills:

-- Understanding directions: 42.9% of supervisors noted improvement in students' understanding directions. 71.4% of ABE students noted improvement while only 1 GED and 1 computer student noted any improvement, the others showing a prior skill. It is to be expected that GED and computer students will have better communication skills than the ABE students, a group which includes ESL students.

-- Reading production tickets: 60% of responding supervisors noted some improvement in accuracy. 87.5% of ABE students who did not already have this skill coming into the class noted improvement. (62.5% noted a lot of improvement) This is an important outcome because reading production tickets accurately is an essential part of doing the job right.

-- Writing accurate reports: 28% of all supervisors noted some improvement. 66.6% of ABE students noted improvement, with 44.4% noting "a lot" of improvement. None of the students indicated "pre." These data indicate that writing accurate reports and reading production tickets are skills that students believe they need to work on, despite the fact that all students have said, during conferences with the teacher, that they have no trouble with production tickets.

-- Communicating needs to supervisors: 50% of responding supervisors noted some improvement, with 1, or 16.6% noting "a lot" of improvement. This is the only time a supervisor answered "a lot" in this survey. 85.7% of all students noted improvement, 28.6% " a lot" and 66.6% "a little." ABE students noted no prior skill, whereas 40% of GED students and 66.6% of computer students indicated a prior skill. This is understandable as the self-confidence of people in these latter groups is likely to be higher.

-- Asking questions clearly: 40% of the supervisors noted improvement, as did 75% of all students who did not already have this skill coming into the class.

-- Offering opinions and ideas: 28.6% of supervisors and 85.7% of students noted improvement. Only 33.3% of the students said they improved "a lot"-- lower than for other categories. "Pre" responses were low, but increased with skill level. This would seem to be an area to focus on with all students in the program.

-- Working well with others: 28.6% of supervisors noted improvement. 83.3% of students who did not already have this skill coming into the class noted improvement.

Note: the Receiving/Power Wind Department noted a large improvement in the way workers communicate their needs on the job. Receiving/ Power Wind also noted the greatest overall improvement of any department. The question of why this department notes such improvement as compared to others remains to be answered.

ASTD Categories:

-- Like to learn: 85.7% of students who did not already have this skill coming into the class noted improvement.

-- Know where to get information: 85.7% of students who did not already have this skill coming into the class indicated improvement. This is to be expected with the independent learning environment which has been created in the classroom.

-- Value your opinions and contributions: 91.6% of students who did not already have this skill coming into the class noted improvement.

-- Try better ways to do things at work: 92.3% of all students noted improvement, 61.5% "a lot." This, again, can be understood considering the independence fostered in the classroom. This has an effect on self-esteem and initiative.

-- Support family's and friends' efforts to learn: 81.3% of students who did not already have this skill coming into the class noted improvement.

-- Understand long-term goals of Hampden Paper: 87.5% of students noted improvement.

Union Issues:

(The answer-options on this questionnaire were: "decreased," "increased," "stayed the same.")

-- Awareness of union benefits: 55.% of the union-member students noted improvement. This increase was the same in most departments, except for Color/Coating where it was slightly higher.

-- Understanding the terms of the union contract: 81.8% of students who did not already have this skill coming into the class noted increased understanding.

-- Interest in becoming a union officer: 20% of the total responding to this question said that their interest decreased -- perhaps because of the constraints that participating in the education program puts on them. 10% reported an increase.

-- Desire to negotiate benefits on union contracts: 50% had an increased interest. This included 100% of the Shipping/Embossing Department, 57% of the Fancy Department, and 66% of computer students. This would perhaps be higher, at the end of a contract period -- like now -- when workers are anticipating new negotiations.

The evaluation team identified scrap reduction as a desirable outcome of their workplace education program, but there was no way to track scrap production/reduction this year. As the company continues to install computerized equipment, systems for measuring scrap will also be developed. This means that tracking scrap production may be an important part of an ongoing outcome evaluation at Hampden Paper.

Aerovox

By late September, the coordinator at Aerovox had a small sample of responses from twelve students who had just completed an ABE class. Data from forty-three other students was collected and analyzed by mid-November, bringing the total number of students to fifty-five. (Eighty-three questionnaires were distributed, and fifty five were returned completed and judged to be useable.) Data from nine department heads was also collected by late November. The lag between September to November is chiefly the result of the amount of time it took to simply collect the data, coupled with the difficulty of mastering the SPSS program, and the fact that the coordinator took a vacation during this time. The coordinator also decided fairly early on that she would solicit help from a student at the University of Massachusetts in Dartmouth, host institution to the education staff, to input the data and run the SPSS program. This university student was not available until the end of September, and then became ill, leaving much of the work to the program coordinator.

Students were drawn from five different classes. The classes and numbers of students from each class are as follows:

1. English for Special Purposes (ESL classes with emphasis on job related language). Responses from twenty students.
2. Adult Education 1 (Adult Basic Education). Responses from twelve students.
3. Adult Education 2 (Pre- Adult Secondary Education and Adult Secondary Education). Responses from five students.
4. GED. Responses from nine students.
5. Pre-SPC (Statistical Process Control) Math workshops. Responses from 9 students.

Students completed the Work-Related Skills questionnaire, the ASTD questionnaire, and the Competencies questionnaire (reading writing and computation, especially for use by teachers and program coordinator.)

Department heads completed a Work-Related Skills questionnaire and commented on their attitudes about the literacy program. The department head Work-Related Skills responses were cross tabulated with worker/student responses and by department. Student responses were cross tabulated by department and classes.

The coordinator considers the responses from the twelve ABE students to be the "cleanest" of her data. This is because the students who answered these questionnaires were still in class when they did so, and because these students completed the questionnaires with the help of a teacher (if they needed it) in a classroom at the end of a class period. The chances of these students taking the questions lightly, misunderstanding them, or exaggerating their answers seemed less than for other groups who had not been in the classroom for four months. In general, the data on job-related tasks for these twelve students are very positive. Students report significant improvement on all the tasks, especially ones related to quality awareness, SPC, reading graphs, and following their manufacturing process instructions (MPIs). One safety-related result deserves special attention.

This summary report of the Aerovox outcome evaluation takes the form of a list of job-related skills with percentage of reported improvement by the twelve ABE students, followed by percentage of reported improvement by the total worker group of fifty-five, and by the nine department heads. (Improvement is here noted as the total percentage of "changed a little" and "changed a lot.." In the coordinator's report , percentages for "changed a little" and "changed a lot" are reported separately. The complete report of the program coordinator is contained in Appendix A, under separate cover.)

It is interesting to note that the percentage of reported improvement by the twelve students does not vary significantly from the data for the total worker group, except in the case of learning about manufacturing process instructions (MPIs). The twelve students focused a lot of attention on MPIs in their ABE class. Their self reports of significant improvement are consonant with the amount of time spent on MPIs in class. This is not the case for the total student group where, for example, students in the SPC math class did not focus on

MPIs. Therefore, the lower percentage of improvement on MPIs for the total student group reflects the fact that not all students focused on MPI's in class.

Job Specific Skills:

-- Can describe my job. 77% of the ABE students noted improvement.; 83% of the total noted improvement; and 66.8% of the department heads noted improvement.

-- Can relate my job to the overall production of capacitors. 62% of the ABE students noted improvement.; 87% of the total noted improvement; and 22.2% of the department heads noted improvement. Obviously, the students report understanding something that the supervisors do not see. (Reasons for discrepancies between supervisors' and students' responses are discussed in a previous section of this report. See pages 16-18.)

-- Inspect parts of my equipment. 54% of the ABE students noted improvement; 65.5% of the total noted improvement; and 55.6% of the department heads noted improvement. Some students come into class already knowing how to inspect their equipment, so the percentage of students reporting improvement is somewhat lower for this task than for others.

-- Practice maintenance of my equipment. 61% of the ABE students noted improvement; 67.3% of the total noted improvement; and 44.4% of the department heads noted improvement. Some students come into class already knowing how to maintain their equipment, so the percentage of students reporting improvement is somewhat lower for this task than for others.

-- Practice cleanliness of my equipment/surroundings. 76% of the ABE students noted improvement; 76.3% of the total noted improvement; and 22.2% of the department heads noted improvement.

-- Take safety precautions. 85% of the ABE students noted improvement; 81.9% of the total noted improvement; and 66.7% of the department heads noted improvement. The number of worker's compensation claims has been reduced so significantly in the last year that the Vice President for Human Resources is considering a change in the company's insurance policy that could save the company around

$150,000 next year. (See page 19, and the coordinator's report in Appendix A.)

-- Understand the need for Quality Control. 93% of the ABE students noted improvement; 87% of the total noted improvement; and 44.4% of the department heads noted improvement. From the perspective of management, quality control is the heart of what workers need to learn in their workplace education classes. Aerovox can compete with its major competitor only on the basis of superior product and short delivery time. A 93% improvement response is especially heartening to management.

-- Understand the purpose of having an MPI. 77% of the ABE students noted improvement; 56.3% of the total noted improvement; and 55.6% of the department heads noted improvement.

-- Can follow my MPI. 85% of the ABE students noted improvement; 49.1% of the total noted improvement; and 55.6% of the department heads noted improvement. This is one area where supervisors note more improvement than the total group. It is likely that they are responding to the dramatic improvement reported by -- and presumably demonstrated on the floor by -- a smaller number of students.

-- Can follow MPIs from other sections. 85% of the ABE students noted improvement; 43.7% of the total noted improvement; and 33.3% of the department heads noted improvement.

-- Can read graphs around the plant. 93% of the ABE students noted improvement; 41.8% of the total noted improvement; and 33.3% of the department heads noted improvement. This is clearly one area where the focus on reading graphs in the ABE curriculum had an impact on student/worker behavior.

-- I can construct a graph. 93% of the ABE students noted improvement; 38.2% of the total noted improvement; and 11.1% of the department heads noted improvement. Same analysis as above.

-- Can understand SPC procedures in the plant. 100% of the ABE students noted improvement; 49.1% of the total noted improvement; and 44.4% of the department heads noted improvement. This is the only skill that 100% of the ABE students say they have improved in. It is an important one for the same reasons described above under "need for Quality Control." Other students may have entered their classes with more knowledge of SPC than their ABE counterparts, sot heir learning curve is not so large. Also, as explained previously, students in classes other than ABE may not have focused as much on SPC in class.

-- Could take part in SPC if asked to do so. 85% of the ABE students noted improvement; 41.8% of the total noted improvement; and 44.4% of the department heads noted improvement.

-- Understand my "Right to Know". 85% of the ABE students noted improvement; 61.8% of the total noted improvement; and 55.6% of the department heads noted improvement.

South Cove Manor

The educational staff on the SCM team did an exhaustive tabulation of the data they had gathered and summarized the key findings as follows:

-- Mastery of skills critical to high-quality care: Students on average have attained 71.35% of the key competencies aimed at by the program.

-- Increased positive interaction between residents and nursing assistants:

+ Residents feel they interact positively with 91.6% of students.
+ Residents report that 83.3% of students adequately explain procedures.
+ Residents report that they now interact more positively with 66.6% of students.
+ Students feel that they now satisfactorily engage in 57.81% of the positive interactions considered critical to quality care.

-- Reduced misunderstandings:

+ Residents report that they adequately understand 91.6% of the students.
+ Residents report that 75% of the students adequately understand the residents themselves.
+ Students report that no misunderstandings take place in 66.6% of their interactions with residents.
+ 66.6 %of students report that the number of misunderstandings with residents has decreased.

-- Reporting changes in resident condition:

- + Residents report that 66.6 %of students adequately relay their messages or report changes in the residents' condition.
- + Supervisory staff report that 66.6 %of students adequately give reports to their English-speaking supervisors.

-- Filling out documents:

- + All students can fill out at least 70 % of necessary information on an English-only flow sheet.

-- Changes in the way SCM operates in order to make best use of students' skills:

- + Students report that 50 % of English-speaking supervisors now pay more attention to students' reports.
- + The reports submitted by 66.6 % of students have enabled the Director of Nursing to make necessary adjustments in patient care plans.
- + The reports submitted by 50 % of student s have enabled English-speaking licensed staff to make necessary adjustments.
- + The reports submitted by 91.6 % of students have enabled bilingual supervisors to make necessary adjustments.

-- Reducing dependency on interpreters and translations:

- + 66.6 % of students feel that English-speaking staff no longer need an interpreter to communicate with them.
- + The Director of Nursing has become less dependent on interpreting when interacting with 41.6 % of students.
- + English-speaking nurses feel they have become less dependent on interpreting when interacting with 66.6 % of students.
- + The Director of Nursing feels she does not need an interpreter for 50 % of students.
- + English-speaking nurses say they don't need an interpreter when interacting with 66.6 % of students.
- + Bilingual supervisors say they interpret less for 91.6 % of students and that they depend less on interpreting to give instruction for 58.3 % of students.

-- Non-job-related benefits: The general proficiency (as measured by the standardized BEST test) of ALL participants has developed considerably.

When these findings were reported at a team meeting on July 25th, it was agreed that the data were "valuable," the kind of "quantitative data" which the team had asked for at the beginning of the study. A management representative noted, however, that the process of planning and carrying out the data-gathering and -analysis was very time-consuming and that future evaluations would require a less-demanding system. This same manager said that future evaluations should look not only at more-experienced students but also at participants newer to the program.

United Electric Controls

By late September, a total of four supervisors had completed questionnaires, assessing the skills of fourteen students. The consultant entered the data from these supervisor questionnaires into an Excel computer database system and produced a grid showing the average "scores" for each student, as well as the average "scores" for each of the eleven questions asked on the questionnaire. (See the United Electric Controls case study in Appendix A for a copy of this grid.) In the process of tabulating the data in this way, the consultant found that the multiple choices offered for each skill area were not as clear as they should be and did not readily lend themselves to numerical analysis. The consultant and program coordinator agreed that future such supervisor questionnaires should be revised to deal with this problem.

Another design-related problem was the fact that some students were not normally expected to perform certain functions in their day-to-day jobs. It was thus not fair -- nor particularly useful -- for them to be assessed on these particular skills by their supervisors. The consultant and coordinator agreed that future such questionnaires should focus only on the skills most relevant for each student.

The consultant and coordinator agreed that, despite these design-related problems, the data which were produced by the supervisor questionnaires could provide rough indicators of how well students are performing particular job tasks. As the coordinator put it: "While we still can't present results in terms of a graph or a Charles Atlas before/after picture, we should at least be able to digest results to show program relevance to company goals."

The coordinator felt that "Workplace outcomes for students at UE have not been promotions or big pay increases. They have been (1) success in adapting to constant change, and (2) contributions to company success through individual initiative." This view was corroborated at a July23rd team meeting where the first questionnaires completed by a supervisor were discussed. At this meeting, the company manager said that he felt that this one supervisor's responses, along with the students' responses and other evidence, indicated that the program has been reasonably successful in getting employees more involved. The team agreed, however, that the employees' English-language abilities are only one of many factors determining how involved workers are. Other factors cited at the team included the employee's "personality" and how management makes use of the worker's skills.

In the consultant's view and that of the coordinator, the information which was gathered could be used by the instructor to further tailor instruction to each student's needs. The data also showed which job tasks students were not expected to perform at present and which tasks were commonly expected of students. The coordinator also noted that the process used to design and implement the evaluation "brought us back into contact with supervisor opinion and provided stronger insights into specific results (or non-results) of classroom projects."

Boston City Hospital

By August, the data from the questionnaires completed by seven students and six supervisors were in. The results produced a somewhat cloudy picture of what the impact the program had had on the students. In some cases (for example, communicating with supervisors, doing high-quality work, communicating with other staff and patients), both students and supervisors rated the students as doing well. In several other areas (such as taking initiative in staff meetings, handling stressful situations, filling out forms, anticipating special needs, and thorough knowledge of their jobs) students' self-assessments and the ratings given by their supervisors tended to differ. It was also found that two students consistently were rated low by their supervisors even though these two students gave themselves "high marks."

In a meeting on July 23rd, it was agreed that the fuzziness of these findings suggested that the instruments needed to be revised if they were to be used in the future. They might, for example, be edited to focus primarily on just a few, highest-priority areas such as communication skills, handling conflicts, and dealing with emergencies. It was also agreed that future evaluations also incorporate data from more-traditional measures such as scores on classroom tests. Future evaluation work would, in any case, require a restructured team, with more representatives and a new program coordinator.

Kennedy Die Castings

The data from the June and August supervisor interviews and student self-assessment questionnaires were tabulated by the consultant who used an Excel computerized database program. The raw data and the corresponding supervisor interview guide and student questionnaire are included in the Kennedy case study in Appendix A.

In his two assessments of the students' job-related abilities, the supervisor indicated the following:

- -- On average, students fall in the "medium" range of ability.
- -- They on average improved slightly during the period of June to August in their abilities to handle all of the given job tasks.
- -- The students showed the strongest abilities in (a) identifying quality defects, (b) functioning as a KDC employee, and (c) comprehending and following directions.
- -- The students were rated lowest in their abilities to (a) communicate in general and (b) actively participate in KDC training programs.
- -- The data could be organized to provide a "ranking" of students. This could be used by instructors to identify which students needed more help and the skills areas which needed particular attention.

In their own self-assessments in August, the students tended to rate themselves on the high end. They seemed particularly confident in their abilities to understand their supervisors' directions, tell someone that they don't understand something, tell their supervisors they have a problem, and spot defects.

When the above data were discussed at the third meeting of the Kennedy team on October 1, the senior company manager said that the single sheet of paper containing the data from the supervisor interviews was particularly useful to him. He felt that, when it came time to make decisions about whether to continue putting company money into the program, he could present this information to his general manager to demonstrate that students were in fact improving their job skills as a result of participating in the program. Similarly, the manager felt he could show such data to his customers who were especially concerned that their suppliers' (in this case, Kennedy's) workforce be able to produce quality goods within a given timeline. Such data were, he felt, more compelling than results from a standardized test.

The manager also noted that, apart from the data produced by the supervisor interview, the data-gathering process had had the added benefit of getting supervisors and other company personnel to pay more attention to the kinds of goals aimed at in the education program. This was corroborated by the supervisor who participated in the interview; he said that going through the interviews helped him focus on what is going on in class and how he can build on what the students are learning. He has seen, for example, how employees on his shift are more productive because they now communicate more effectively in a team atmosphere. He feels that the class provides a convenient forum for communicating important information to a number of workers at one time, and so he plans to continue participating as an occasional instructor in the class.

Another team member -- the human resources officer -- similarly said that going over the data has made her pay more attention to the communication skills of the students with whom she interacts around personnel matters. The senior manager suggested that, given such benefits of involving supervisory-level employees in assessments of workers' skills, questionnaires containing similar questions might now be disseminated to all supervisors at the end of each education program cycle. He cautioned, however, that future evaluation activities not be overwhelming in terms of the amount of data produced and time needed to make sense of the data. As he put it: "Don't paralyze by analyzing."

The senior manager felt that the supervisor's assessments of the education program's impacts were more meaningful than an evaluation done by an outside evaluator. The supervisor was seen as being "close" to the actual workplace situation in a way that an outsider could not be. The supervisor also has a personal investment in seeing that the education program in fact improves his workers' skills and thus approaches his assessment of the workers with a critical eye. (Another team member -- the program instructor -- had made the same point before the meeting began. She said that supervisors at Kennedy now have more authority than they had had previously and that supervisors now tended to be more thoughtful and involved vis-a-vis what happened on the shop floor. By going through this goal-setting and evaluation process, the supervisor's sense of ownership for the work process was, she felt, reinforced.)

In addition to the above comments from company representatives, the instructor who gathered the data felt that the evaluation process was instructive in the following ways:

(1) The feedback provided by the supervisor in the interviews tended to confirm the teacher's understanding of the students' abilities, but not in all cases. The instructor was able to see how a student might perform well in the classroom but not be transferring that ability to the worksite -- or vice versa. This enabled the instructor to clarify where students' skill gaps were and to change the curriculum accordingly. (For example, the results suggested to her that she might divide the students into beginning-level and more-advanced-level groupings, so that beginners could get the extra help they appeared to need and so that the more-advanced students wouldn't be "held back.") The supervisor's assessments also raised questions about other factors unrelated to the education program which might be impacting the students' use of the newly-acquired skills on the job. Such variables

might include personality conflicts with the supervisor, a work environment so noisy that it inhibits clear communication, and social pressure for an employee to "appear" to understand even when he doesn't.

(2) The process demonstrated to the instructor just how complex her job is. At a time when the entire production process is placing greater demands on individual workers, she is being asked to customize instruction to a number of job-related tasks with which she has no direct experience. This has led her to conclude that she needs more technical input from the company if she is to effectively tailor the program to the company's interests within the limited amount of instructional time available. But it is difficult to get that input at a time when the supervisory-level personnel who might give that input are being replaced and also being expected to take on other new responsibilities beyond those required by the education program. (This point about the complex nature of what she has to teach was made particularly clear when she tried -- unsuccessfully -- to set up a simulation activity as one way of assessing students' abilities to handle particular job tasks. She had thought that the problem to be solved in the simulation was relatively straightforward, but soon learned that even seemingly-simple tasks could be solved in a number of ways depending on details which she could not foresee when designing the simulation problem.)

(3) The goal-setting process used in the initial steps of planning this evaluation was very useful for the instructor. The extra attention paid to setting clear goals this time has shown her that, by setting clear goals, she can more effectively monitor progress toward those goals.

Step 9: Reporting of data and other follow-up action (August - November 1991)

Now that they had summarized and analyzed the data, the six teams were faced with the task of preparing reports for the audiences they wished to present their findings to. In consultation with the consultants, the teams decided to whom they would report their findings and the formats of those reports. These audiences, the form the reports were to take, and other follow-up action varied from program to program, as follows:

Hampden Paper

The coordinator presented a written summary report to the members of the Hampden Paper evaluation team prior to the fourth and final meeting of the team. That report generated discussion in the fourth team meeting, and was the "skeleton" of the final report which the program coordinator then completed in November. The final report will be distributed to supervisors and other managers at Hampden Paper in order to share information about the education program and to generate support for it.

Aerovox

In the third site visit meeting in mid-September, the team agreed that it should present a summary report to three or four Aerovox vice presidents, especially the vice president for quality control. The vice president for human resources, a member of the evaluation team, suggested that selected findings could also be included in the Aerovox Annual Report as well as in the Aerovox newsletter. He took responsibility for making this happen. The coordinator invited the other VPs to the fourth and final team meeting in late October, and presented them with a summary report.

When the team members reported their preliminary findings to the vice president for quality control at the fourth site visit meeting, they found a surprisingly sympathetic ear. Recently returned from a visit to another company which had embraced the "high productivity" model (team-based work, building-to-order, total commitment to quality, and worker involvement in the work process, etc), he was especially interested in workers' reports that participation in the Aerovox education program helped them to develop a sense of team work and team identity. (This is included in the ASTD categories: 71.9% of the total reported improvement; 55.5% of the department heads reported improvement.)

He suggested that future education programs might focus more on skills like team-building and on changing the organization of the company in general (with significantly more emphasis on valuing the ideas of workers), as well as on more-traditional basic skills. The evaluation team meeting provided the venue for the vice president for quality control to discuss this new idea with other key people in the company and to begin to plan how these new ideas might be carried out.

The final report of the Aerovox evaluation, which the coordinator completed in late November, will be distributed to the other vice presidents and to other interested parties as a way of promoting support for workplace education.

South Cove Manor

In a meeting with the consultant on July 25, the team agreed that the above findings would be presented -- in a combination of oral form and written summaries -- to the following audiences: the SCM board, the board of the Chinese American Civic Association (the education service provider), students in the SCM ESL class, and the state office which provided funds to the program. (Note: Subsequent to the July 25th meeting, SCM decided to terminate its contract with CACA and close the ESL program. It was thus not clear at the time when this report was written whether the program would make further use of the data gathered, the instruments used, or the team structure which had been developed. However, CACA was actively planning to use a similar planning and evaluation process in the workplace education programs it was setting up with other area employers.)

Kennedy Die Castings

At its third meeting on October 1, team members agreed that they would summarize the data and conclusions described under Step 8 above in the following ways: The senior manager would combine the above findings with additional comments of his own and from his human resources officer. This report would then be available when management decides what amount to invest in the education program in the future. The education providers likewise will incorporate the study's findings into the final reports they submit internally to their own supervisors and externally to their funders.

These same educators (who are based at Quinsigamond Community College) are also moving to transfer the experience gained in this year's outcome study to their work in other workplace education programs in the Worcester area. For example, because the program for workers at the T.J. Maxx warehouse is now becoming increasingly work-related, the Quinsigamond educators hope to implement a goal-setting process which will help T.J. Maxx to clarify just which job-related goals it wants the curriculum to focus on. Similarly, the Norton Company is using its new education program as a way of instituting a more participatory work format. The company is thus interested in using the "team" goal-setting and planning approach which the Quinsigamond educators are developing. The Quinsigamond staff will use information about the process used in the Kennedy project in their communications with these and other employers.

United Electrical Controls

When the data from the four UEC supervisors and nineteen students were analyzed as described under Step 8 above, the coordinator agreed that, with design revisions, the questionnaires might be used again for additional evaluations at UE. The coordinator said that he would like to combine these types of questionnaires with other instruments he had previously developed or considered at UE and other programs. (These other instruments could include multiple-choice job-related tests for students and roundtable discussions in which supervisors assessed what was happening in the program.) When organized in a "battery" or "portfolio," these data-gathering instruments would provide a program coordinator with a set of evaluation tools to adapt for use in any workplace program. In the meantime, the coordinator agreed to provide a copy of the "grid" of supervisor responses to the team's human resource manager. This grid could serve both as an indication of the rough findings of the supervisor questionnaire and as a model for how similar data could be organized in the future.

Boston City Hospital

At their July 23rd meeting, representatives of the BCH team agreed that they would summarize what data were available from the two questionnaires and student test scores and present them to senior management. This would be done to (1) increase management's support for the program in general and (2) get senior management more involved in the team. The latter involvement by senior managers was seen as important because management needs to have input into program goal-setting, coordination of the basic skills program with other human resource programs, and other key activities.

The team suffered further attrition in September, to the point where only one representative from the original team was actively attending to educational issues. This "sole survivor" (the union representative) said in a letter to the consultant that , despite the damage done to the team by staff reductions, she "would continue to push for more commitment to workplace education...and suggest that we use some of the tools that you have left us with in terms of goals setting and evaluation."

Step 10: Evaluation done of the outcome study process itself: September - November 1991

In order to clarify how effective this outcome study process was, the consultants provided opportunities for the six evaluation teams to assess their own experience in the project and to make recommendations for possible future outcome study activities. The consultants informally asked various evaluation team members how effective they thought the evaluation process had been and where there was room for improvement. In addition, the consultants constructed a brief questionnaire which asked the team members to assess the effectiveness of the evaluation process and make recommendations for improvement. A copy of this questionnaire is included in Appendix B, under separate cover.

The consultants' conversations with team members and the written evaluations indicated that, in general, the process of establishing an evaluation team which represents the partnership and together defines appropriate outcomes is very valuable. These evaluations also indicated that more work needs to be done in defining outcomes, designing the best measurements for these outcomes, and in balancing the need for effective evaluation with the demands it places on everyone's time. This feedback has been incorporated into the analysis described in Section III below.

III. Looking Back and Looking Ahead: An Assessment of the Project and Its Implications for the Future

Because this project was framed by its planners as experimental in nature, it is important now at its closure to assess what in fact was achieved in the project. From this self-examination, we can get a clearer picture of how the workplace education field might build on the experience provided by the project.
This section first assesses how well the project met its stated goals. It concludes with a set of recommendations for the various parties which might have an interest in building on the project's experience in the future. This discussion incorporates feedback received from the evaluation teams along with the consultants' observations.

What the Project Achieved:

As stated at the beginning of this report, the MWEI Cycle 4 evaluation was originally set forth as "a combined outcome study and organizational development project," with the following three major goals:

1. Build the capacities of individual programs to conduct outcome evaluations.

2. More clearly define desired outcomes for each site and produce data which demonstrate what in fact is being achieved.

3. Develop a "tool kit" (an evaluation planning process, data-gathering instruments, and resource persons) which other programs can use to develop their own planning and evaluation systems.

What follows are assessments by evaluation team members and the consultants of how fully each of these goals was achieved:

Goal #1: *Build the capacities of individual programs to conduct outcome evaluations.*

Achieving this goal was key to the success of the entire project. In general, the goal was achieved, although the level of achievement varied from site to site, and even within individual sites.

The six teams carried out the planning, instrument-design, data-gathering and analysis, and reporting activities described in Section II above. In the process, most of them emerged with a clearer team identity and an understanding of how they might not only assess what is being achieved in their programs but -- from the start --build their education programs around clear goals reflecting the diverse interests represented in each program. Team meetings gave supervisors, managers, workers, union representatives, and education staff the opportunity to meet regularly, focus on a common purpose, and draw on the strengths of their different roles. Often the evaluation team meeting was the only time that representatives from these different groups gathered together to discuss the education program. This means that issues which needed to be discussed but had no other place in which to be discussed were reviewed and resolved.

- For example, at Hampden Paper the union representative had the opportunity to query the company president about the effects of an educational certification program on seniority, and a supervisor reported candidly to the president about the critical attitudes of other supervisors toward the education program. These issues were highly relevant to an effective evaluation but also to effective program development and implementation. Without the evaluation team meetings, this important information would not have been shared in a timely way -- and maybe not shared at all.

- Similarly, at Kennedy, the team meeting triggered goal-setting meetings with other supervisory staff. Rather than just rely on outcomes defined in the evaluation team, the coordinator decided to query other interested parties, too, and to involve them in a goal-setting/feedback process. The purposes of these goal-setting activities were to develop the curriculum as well as to enhance the evaluation.

- The process of defining outcomes for the education program helped a manager at United Electric Controls to see to see how the standards set for workers in the ESL program also apply to other workers. The team process thus informed the larger human resource development system which the company was introducing and helped it to flesh out standards which all workers should be measured against.

For the last three years, the MWEI has required that each funded program be overseen by an advisory board which represents the diverse groups in the program partnership. These groups typically consist of management, labor, and the education provider. While these advisory boards were originally intended to provide opportunities for open exchange, they have often become forums only for upper-level managers to be kept informed about program details. Real discussion in most of the existing advisory boards is limited, especially by the roles that govern relationships in the workplace. In the new evaluation teams created for this year's outcome study, however, the difference in roles and perspectives was valued and actively elicited by the consultant. In contrast, the meetings of the older advisory boards have not been facilitated by an outside evaluator whose aim is to include all perspectives in the discussion.

Other positive results of the team-building effort were (1) the development among some team members of new skills and self-confidence vis-a-vis program evaluation and (2) clarification for students about how evaluations can be used and resulting increased willingness among students to participate in similar evaluations in the future.

The teams' abilities to make maximum use of their new identities and knowledge, however, were limited by obstacles which were both built into the evaluation plan and which were the result of organizational problems or changes in the companies. These obstacles were as follows:

1. The evaluation plan required the consultants to simultaneously develop the team and use the team to perform the required work. None of the teams had worked together as such before the January 10th meeting. While there was good will and desire to work, teams do not become teams because someone tells them they are a team. Rather, the team builds an identity over time, through planning their work and then working together. The time constraints of the evaluation, and the limited number of site visits which the consultants could make to each program, overly compressed the work to be done.

2. Team members who did not understand the importance and value of working as a team could not take ownership of the evaluation in a way that insured their maximum participation.

3. Some team members had a traditional mindset vis-a-vis "evaluation," seeing it as something done by outside experts rather than by program participants themselves.

4. Some team members had limited experience of this type of collaborative evaluation, felt they did not have the skills to do the work, and were sometimes confused by what they were asked to do.

5. Team members often found it difficult to come up with mutually-convenient times when they could work together.

6. Some programs were operating within organizations experiencing considerable pressure due to budget cuts and staff cutbacks, leading team members to question the value of the evaluation.

7. The two consultants had only limited time to help the programs deal with these limiting factors as they emerged -- often unpredictably -- during the course of the project.

Goal #2: *More clearly define desired outcomes for each site and produce data which demonstrate what in fact is being achieved*

The teams made real strides in nine months toward, first, identifying meaningful goals for the program and, then, designing and using appropriate instruments to measure progress toward those goals. However, the data which resulted from these efforts were of varied quality and usefulness.

Most members of the teams went into this project believing that, yes, good things were happening in their education programs and that they simply needed to find an appropriate, meaningful way of documenting these positive results. This proved to be much easier said than done, for two reasons. In part, putting together a sound study was hindered by the "obstacles" cited under the discussion of "Goal #1" above. But this study of outcomes was also difficult because -- even under the best of circumstances -- it is difficult to make tangible the impact of an education program on a particular worker's behavior on the job. These difficulties stem from the fact that employee behavior is determined by so many factors beyond the education program, standards for worker performance are not clear, and other variables. (See Sticht in References.)

The best-quality data gave the clearest, best-balanced picture of how fully the learners were currently performing certain agreed-upon functions. The teams recognized early on that they would have to rely primarily on the assessments of people involved with workers on the job -- supervisors and "customers" -- and on workers' own self reports. The reliance on these assessments stemmed from the relative ease with which they could be designed and completed. These assessments had a built-in degree of subjectivity to them. The teams attempted to deal constructively with this subjectivity by following principles of social science research, particularly that of triangulation: (1) setting clear terms and standards for the abilities being measured and (2) relying on a number of informants' perspectives to inform the evaluation rather than on, for example, just one supervisor's assessment or just the students' self-assessments. The "simulations" developed by the South Cove Manor evaluation team were an attempt to identify more objective measures of student progress. While simulations might not be appropriate in all work settings, most teams realize the importance of establishing more-objective measures of student progress which complement the worker self- reports and reports by supervisors and customers. What "more-objective measures" means in each program needs to be defined carefully by each evaluation team, without discounting the value of soliciting perceptions of change from the players involved.

Despite these honest attempts to grapple with issues of subjectivity, the quality of the data which came back were often of limited scope. For instance, one team could, due to staffing changes, come up with only one supervisor who could give informed feedback on learners' behavior and that single supervisor had interacted with the learners only recently rather than over the full life of the program. Also, much of the data produced gave only an indication of where particular students stood at present, and there was thus only a limited basis for comparing their current abilities to their skill levels when they entered the program, apart from perceptions of change reported after the students had already gone through the program. (Kennedy Die Castings was the only program which collected something like longitudinal data by having a supervisor assess workers' abilities twice over a three-month period.)

In such cases, the data which came back had to be viewed as a base line against which future similar data could be compared. This initial stab at gathering data is viewed positively as a pilot effort from which the teams could get a clearer picture of which outcomes to focus on and the most effective ways of gathering information pertinent to those outcomes, and then revise their existing instruments and perhaps develop new ones.

In the best cases, teams focused on a carefully-selected set of outcomes and then were able to gather a sufficient amount of data about a significant portion of the student body from a number of sources. The resulting data, in turn, provided a sufficient body of reliable evidence to draw conclusions from. Coming up with such extensive data required much hard work by committed, thoughtful team members who went the extra mile in tracking down sources, testing and revising instruments, and developing a systematic way of recording and analyzing results.

In both the stronger and less-strong efforts, the data which were gathered had -- at a minimum -- the potential for getting team members to be clearer about the goals their programs should be aiming at, even if the teams had not yet developed smooth mechanisms for assessing progress toward those goals.

Goal #3: *Develop a "tool kit" (an evaluation process, data-gathering instruments, and resource persons) which other programs can use to develop their own planning and evaluation systems.*

As stated in the discussion of Goal #2 above, the stronger teams were fairly successful in developing a process, instruments, and a pool of resource persons which they could use to carry out similar outcome studies in the future and to teach others how to conduct similar studies . (There has emerged a multiplier effect beyond the scope of this project. For example, The Chinese American Civic Association is now interested in using the SPSS program to computerize evaluation data on all the other education services it provides in the Chinese community. Quinsigamond Community College is now adapting key elements of this year's project -- goal-setting and other planning and evaluation activities -- to its work with other area employers.) These processes and instruments were not perfect, however, and they would require additional supports to take the next step of strengthening the fledgling evaluation systems they had begun to develop. These supports would include "internal" ones like paid time for team members to devote to evaluation work as well as active participation and commitment from all other team members. Support would also have to come in the form of "external" assistance such as workshops which focused on the specific technical needs of team members. (For example, many teams could likely benefit from guidance on new approaches to data-gathering which go beyond the traditional questionnaire and checklist.)

How the positive experience of these teams could be built on within the six pilot programs and by other workplace education efforts is discussed in the following Section.

Recommendations for Future Efforts Aimed at Strengthening the Planning and Evaluation Capacities of Workplace Education Programs

The following recommendations are divided into two sets. The first set is for state-level planners and funders; the second is for the evaluation resource people who would provide technical assistance to workplace planning and evaluation teams.

Recommendations for state-level planners and funders: As stated previously, this year's outcome evaluation project has demonstrated that efforts targeted at the project's three goals can produce significant benefits for workplace education programs. Benefits include strengthened planning and evaluation capacities for individual workplace education programs as well as clearer data about what is in fact being accomplished in the programs. This year's project showed that, to be successful, future efforts should build on this year's experience. A future statewide effort would focus on putting the key elements of successful on-site program evaluation in place while dealing constructively with the obstacles which block successful evaluation team efforts.

In order to build on the strengths of this year's experience and avoid the problems encountered, state-level planners and funders of workplace education programs should:

- Modify funding guidelines to require that each site have an active planning and evaluation team in place if it is to qualify for funding. These teams would be more than figurehead groups. They would be required to work together over the course of the funding period to perform appropriate planning and evaluation activities. They would need an active coordinator in charge of organizing planning and evaluation activities. These activities would include ongoing goal-setting activities and development and use of appropriate measures of program outcomes. Program coordinators are the likely people to take on this role. They have been responsible for evaluation activities in the past and actively participated in the teams this year, taking the lead in organizing teams and collecting data. In subsequent years, this work should be integrated into the responsibilities the coordinators are expected to carry, rather than be seen as extra work.

- Require these planning and evaluation activities to follow a step-by-step process similar to that developed in this first year's project. With proper training of key team members, as well as access to a core group of resource persons with technical expertise in the various facets of planning and evaluation work, the teams could efficiently incorporate planning and evaluation as a central function of their work. Already-existing teams would continue to receive technical assistance from resource persons.

- Organize and support a cadre of resource persons who would provide technical assistance to workplace teams. The state-level partners would thus not only write such a new emphasis on planning and evaluation activities into funding guidelines, but would also organize the core group of resource persons referred to above. These resource persons would hold formal training sessions in evaluation for workplace educators from around the state and also be available for on-site consultation and informal telephone feedback sessions. Print and other resources -- like this report, copies of sample instruments developed this year, and by others, relevant reports and videos from around the nation, and annotated bibliographies-- might also be made available.directly through the resource people, the MWEI Coordinator, and the System for Adult Education Support (SABES).

- Provide additional workshops where supervisors, managers, workers, union representatives, and education staff meet together in their interest groups across programs. The outcome evaluation this year only touched on the benefit of this kind of cross-fertilization in the January 10th workshop. With the exception of education staff who already enjoy regular meetings with their counterparts from other programs, all of the participants at that workshop said that they wanted more time with their interest groups.

Recommendations for evaluation resource persons: In addition to what the state-level partners need to do, a good deal of activity is needed at the level of the local workplace education partnerships. If the partnerships are re-organized under "planning and evaluation teams," then the members of those teams must be educated about the value and technical requirements of effective program evaluation. Team membership should be limited to those who have the desire and time to work. Teams should be discouraged from "dumping" planning and evaluation activities onto one or two team members' laps. The resource persons should help team members to see the required activities as the responsibility of all team members. Evaluation resource persons should encourage team members to see that each of them represents an important set of interests in the program, and to use well-supported planning and evaluation activities to insure that the program serves their respective interests.

For the planning and evaluation teams to work, all team members need to take on ownership for the process. Then they need to commit the time and effort necessary to figure out what an effective planning and evaluation process requires, and see that it gets done.

Specifically, to best facilitate team-based evaluations in the second year, evaluation resource persons should:

- Provide training/organizational-development opportunities in which teams can develop a team identity and negotiate goals to be achieved through collaborative program evaluation.

- Develop exercises in which teams can clearly define desired workplace education outcomes.

- Actively address the contradiction between programs' desires to measure meaningful outcomes and the limited amount of time they feel they can invest in collective planning, data gathering, and analysis.

- Explore different ways to collect data beyond the checklist, survey, and interview; develop a "menu" of methods for use across programs, including both "direct" and "unobtrusive" methods.

- Consult with a specialist in measurement to ensure that evaluation tools are methodologically correct.

- Gather all the teams together for more frequent sharing of information.

- Expand the computer data-analysis expertise among teams for the following reasons. Computer analysis can:
  -- help to systematize the sequence of steps in conducting an outcome study;

-- establish a system at the beginning of a study -- for even a small group of respondents -- that can be expanded and compared over time;
-- over time help to bring other data-collection procedures in the workplace into a comparable format;
-- present data in a statistical format which appeals to managers and others who want "hard" information about how the program is working;
-- provide another way for students to become involved in their programs and their evaluations.

A second year of planning and evaluation activity could thus combine guidelines, funding, and technical assistance to create a new orientation and new capacities in all workplace education programs in the state. This second year's activity should itself be evaluated and in turn built on in future years.

Curriculum Study

I. Introduction: Why the Curriculum Study was Requested

In the fall of 1990, as part of the fourth year evaluation, the Massachusetts Workplace Education Initiative state level partners requested a study of the curricula at a sample of workplace education programs. Through this study they hoped to:

- Better understand curriculum, and the process and state of the art of curriculum development, as they exist in the Initiative (see pages 83-91);
- See what curriculum features appeared to be effective, and what curriculum practices were most promising (pages 122-127);
- See the range of similarities and differences in curriculum across the programs (these are addressed throughout this report);
- Better understand what skills, knowledge, and experience workplace education teachers need, and what their jobs require (pages 118-122); and
- Receive recommendations on how curriculum might be improved at individual sites and across the initiative (pages 131-137).

They also wanted to know:

- What philosophies and educational approaches were being used (pages 83-91);
- Whether or not programs had curriculum objectives, and if so, if the objectives were being measured (addressed in outcome study);
- Whether the curricula addressed workers' needs or only employer needs (throughout this report, it is clear both are addressed);

- Whether or not learner-centered curricula were being used (throughout the report there is evidence that to varying degrees the curricula are learner-centered); and

- If workers were able to participate more fully in the workplace because of the curricula (throughout the report there is evidence that they are, although to varying degrees).

Finally, they wondered how these programs would compare to an emerging set of norms articulated in such documents as the Massachusetts Department of Education's most recent request for proposals, the Massachusetts Interagency Literacy Group's "Principles for Effective Literacy and Basic Skills Programs," and the Workplace Education Initiative Guidebook and Request for Proposals.

II. Curriculum Evaluation Methodology: How the Study was Carried Out

In the Fall of 1990, we developed a set of norms from the documents which had been identified by the state level partners. (See Appendix C, under separate cover, for "Workplace Education Initiative Curriculum Standards.")

From these norms, we developed data collection instruments: a general information questionnaire, administered prior to the site visits; a format for review of curriculum materials; and a set of group and individual interview protocols for gathering information from coordinators, teachers, evaluation team members and students. (See Appendix C for copies of the protocols and other data gathering instruments)

We visited four programs, each for at least two days, in the winter and spring of 1991 in order to observe classes; interview students, teachers, coordinators, evaluation team members and others; and to review additional curriculum materials.

After completing all the site visits we analyzed the information from these interviews and summarized our findings in this report.

The workplace education programs studied here, like fast rivers, are dynamic, changing entities. This curriculum study was an opportunity to jump into these rivers and float with them each for a brief period. By the time we were writing the draft of this report, just months after our data collection, we were already aware of significant changes being made in the programs and their curricula. This report should be viewed as a collection of snapshots of the Workplace Education Initiative program curricula at a time when the programs were young, and growing fast.

III. Findings

A. The Meaning of "Curriculum" at the State Level and at the Individual Program Level

"Curriculum" in this study, as defined by the state partners, means "The materials developed and used by program staff, the process by which materials are put together, actual classroom practices, and the philosophy which guides these activities." This was a definition agreed upon by the partners at the study's outset. Assessment is not included in this definition and is only touched upon in this study. It is an important area for program evaluation, but was both beyond the scope and resources available this year.

This definition represents the anticipated diversity of the curriculum definitions and approaches used by the programs in the Initiative. One of our purposes was to better understand what each of the programs meant by "curriculum" and how diverse, in fact, these definitions were.

Curriculum and Curriculum Development at Kennedy Die Castings, Inc.

The philosophy or approach which undergirds ESL curriculum development at the Kennedy Die Castings, Inc. program, is described in the words of its Coordinator, Kathy Rentsch, and Head Teacher/Curriculum Developer, Kathy Soderstrom, as: "a multi-faceted process that develops all language areas simultaneously using the strengths students have, and building upon them in a natural, holistic manner. It is based on the belief that communication is composed of the elements of speaking, listening, reading, and writing, and that they should be developed naturally and together."

"Students are encouraged to use language that is familiar to them. Lessons are student-centered and always taught.in a natural language context, not in isolated drills. The processes are taught as a whole, not as sub-skills. The workplace and its specific situations -- machinery, processes, personnel, rules and regulations provide the necessary background knowledge." (From "Introduction to Kennedy Die Castings, Inc. Curriculum") The ultimate goals of such an approach -- for student/workers -- are increasing their self-confidence; helping them to function effectively in the workplace and outside; and "enabling and empowering" learners through improved English language skills to articulate their views, read, write, compute, participate and work in groups, and solve problems, especially job-related problems.

In this program, "curriculum" refers to the units and materials developed or adapted, and the work tasks and daily living tasks from which the language lessons are drawn. It is also the instructional process which tailors the learning to the variety of backgrounds, experiences, skills, knowledge, and learning styles of student/workers. Thus, the line that is sometimes drawn in education between curriculum and instruction is here deliberately blurred to avoid fragmentation and to assure that the curriculum is learner-centered.

There are 29 work-based curriculum units, in various stages of refinement, derived from student language, work, and life skill needs as articulated by company representatives and by workers. They include topic areas such as: health and safety; quality assurance; the process, tools, and equipment of aluminum die casting; reading signs at work; and communication skills. The curriculum units are intended to guide, aid, and assist teachers as they use and adapt them to facilitate learner-centered, contextual activities in the classroom. The curriculum development process used by the Worcester Workplace Education Collaborative, which includes Kennedy Die Castings, Inc. as one of its sites, is as follows:

1. The curriculum developer observes what learners do at work, takes photographs, and collects "realia" such as notices, signs, and written instructions which are part of work tasks or the work environment;

2. She facilitates a collaborative goal-setting session with learners and with supervisors to determine overall interests and goals;

3. From these, she develops themes which address worker language skills, needs and interests such as: signs in the workplace; health in the workplace; quality assurance; and work process and product control;

4. These are reviewed by teachers, and by the site teams, which include representation from the company, including supervisors. Curriculum is not reviewed formally by students.

The curriculum units are tailored by the instructor in the classroom using such co-operative learning techniques as peer grouping, role playing, discussion, experience charting, picture stories (using site-specific photographs), problem-solving, and student-written booklets such as "A Day on the Job of...." or "The machines and Processes at...."

The curriculum is organized by theme (work-related or other contextually-related theme such as: health and safety; quality assurance; communications; aluminum die casting; casting defects; tools, equipment and gauges; signs at the workplace, etc.) instead of by a sequence of language skills or life skills. Language skills, however, are included; they are embedded in the themes. "Theme," as we understand its use in this program, means a contextual topic, or an area of student concerns, problems or issues.

Classroom activities, however, are not limited to the content of these curriculum units. Instructors also draw upon students' immediate language needs from work and from their lives outside work which students, the instructor, or supervisors may identify.

Although curriculum revision is an ongoing process, in the summer of 1990 there was a major revision of the curriculum. The former curriculum separated "work-related" learning from "ESL" learning. The new curriculum integrates these, and is used at all three companies in the Worcester Workplace Education Collaborative. It consists of curriculum units and a teacher's guide, and is photocopied and given to students to take home.

Curriculum and Curriculum Development at Boston City Hospital

Boston City Hospital has two adult basic education courses with quite different aims and curricula: the basic academic skills (ABE) course and the pre-technical science and study skills course. The curriculum for the basic academic skills course is a set of competency areas and specific competencies or "performance indicators". It has two sections: "Healthcare Workplace Skills," and "Academic Skills." The first section is largely workplace-specific basic skills, the second a continuum of basic skills leading to the goal of passing the high school equivalency diploma (GED) exams.

The first section of the basic academic skills course, "Healthcare Workplace Skills," includes such competency areas as: telephone communications, e.g. taking and giving messages in hospital units/floors and in outpatient clinics, or responding to an emergency; forms, e.g. accurately completing applications, surveys, health information forms, and incident reports, and filing a grievance with one's union; Job Management Skills, e.g. understanding the purpose of one's department, balancing resources, cultural sensitivity issues, and others.

The second section, "Academic Skills," includes: mathematics, reading, writing, science and test-taking skills. Basic math skills range from addition and subtraction of whole numbers through algebra, and include some life skills such as map reading and household budgeting. Reading skills range from word recognition through inferential comprehension, critical reading skills and interpretation of literature. Writing skills include work-related writing, e.g. charting medical records, as well as GED test essay writing skills. Science topics are both GED preparatory and health-related. This class and its curriculum are intended to cover a wide range of skill levels from functional illiteracy through secondary school level skills.

The pre-technical science and study skills course and curriculum is intended for workers going on (or back) for further academic and career training. It is a "next step" course for those who have secondary level skills but do not have the study skills and/or the science knowledge to enroll in or do well in post-secondary training courses.

Study skills such as: how to listen to a lecture, or how to use the 'PQRST' method of study, and test-taking skills are taught and practiced. The content of lectures, textbooks and handouts is from the health sciences: basic anatomy; basic physiological chemistry; chemistry, matter and life; basic organic chemistry and cellular biology; tissues, glands and membranes; disease and disease-producing organisms; and the various body systems. A last section prepares students for writing a college-level research paper and includes the mechanics of organizing research data and writing a research paper through at least two drafts. Because this is a college preparatory course students must also pass a written final examination as one of their competencies.

Despite what appears to be a rather set syllabus for each course, when asked what the education program's philosophy or instructional approach was, the program's Teacher/Counselor/Coordinator, Paul Guldenzoph, said that he tries to identify employee learning needs from the perspectives of students and supervisors and to "make a flexible attempt to meet their needs." Where perceptions of these needs differ, he said, he tries to strike a balance.

Curriculum and Curriculum Development at Hampden Paper Company

At Hampden Paper Company "curriculum" includes a syllabus of competencies, the sequencing of that syllabus, learning activities, materials and, and other parts of the content in the classroom. The syllabus consists of two sets of competencies: a "skills checklist", a relatively new basic set of learner competencies which the teacher/coordinator derived from assessing student needs from the point of view of both students and supervisors; and a competency-based GED preparation curriculum which was developed by Jobs For Youth-Boston, Inc.

The Fall, 1990 version of the checklist includes reading, writing, math and three job-specific competencies. The six math skill areas include: the four basic operations, simple percentages, simple fractions, reading a ruler, and using liquid measures. Reading includes: a formula ticket, graphs, charts, political maps, road maps, classified ads, and understanding main idea of a selection at a certain grade level. Writing skills include: filling out forms, completing formula tickets, using the word processor, and writing a paragraph and an essay. Job-specific competencies include: giving and following oral and written directions, and explaining one's machine and one's job.

The GED competencies include those required on the five GED tests: literature and the arts; mathematics, science, social studies, and writing skills.

Another way in which the program looks at "curriculum", and one emphasized by Teacher/Coordinator, Janice Rogers, is that because each individual student has his or her own curriculum, created for that person from individual student conferences, and also incorporating competencies tailored from the program syllabus, it also makes sense to refer to the program as having many curricula, one for each student.

Unlike the other three programs in the curriculum study, the Hampden Paper Company workplace education program is open-entry, open-exit, and individually-paced. Student/workers arrange appointments for study time in the learning center (classroom). Their learning is supervised by a teacher who is available to provide each student with individual instruction. Because there is great interest in meeting individual student needs, especially those which arise from work tasks, we saw many instances where a curriculum had been developed for each individual student from that person's articulated needs in a conference with the teacher. The "Chemical Mixer Formula Ticket," which will be described later, is an excellent example of this.

In this program, especially, the notion of "curriculum," as well as the content is evolving. The introduction of computers in the classroom this year, for example, appears to have generated some new curriculum dimensions: for example, word processing, simple database filing programs, and the use of spreadsheets. As planning in the company moves forward, and employees are encouraged to prepare for and demonstrate new work area competencies, no doubt the focus of the curriculum will grow and/or change again.

Curriculum and Curriculum Development at South Cove Manor Nursing Home

Initially the education staff at South Cove Manor developed a competency-based curriculum. Halfway through the first year of the program, in mid-1989, they radically modified their approach to curriculum development. Johan Uvin, the On-site Coordinator/Instructor, has written extensively about why this change was needed, and about the process for curriculum development they now use (Caldwell/Chang/Uvin, 1991). Some of the information in this section is based on his writing, some on our interviews.

To understand "curriculum" at South Cove Manor, requires some understanding of the original curriculum, the needs which led to the adoption of a new meaning and process for curriculum development, and that process itself. At the cost of oversimplifying, we will briefly attempt to do this here.

At the Chinese American Civic Association, the education partner for this program, the tradition of curriculum development is competency-based models. When this program was first funded through the state and federal Workplace Education Initiatives, it was assumed that a teacher-developed, competency-based curriculum would best meet the needs of students in this situation. It was organized around language and work task needs, as determined by teachers, and was also organized by "Student Performance Levels", "Literacy" levels and "arithmetic Computation" within each curriculum unit.

For example, in a section of the original curriculum called "Things Nursing Assistants Need To Know How To Do For Their Job" is the competency area "Provide For Safety, Privacy, Comfort, and Well-being." This includes six competencies, such as "answer call lights and call bells", "respond to behavioral problems," and "relate to visitors and family." And each of these is broken down into very specific competency statements (usually English language competency) such as: SPL 1 "to ask for clarification by asking simple yes/no questions" or SPL 4: "to identify and explain patient rights, abuse, mistreatment and neglect using the patient bill of rights as a reference."

As the curriculum was being written, Johan Uvin and his teaching colleagues, Marianne Caldwell and Hsiao Chang found many shortcomings in this approach:

1. Soon after they were written, whole sections became obsolete, because in this work environment job descriptions change very rapidly. Like many dynamic work environments, changes are driven by up or down-turning economics and labor force supply and demand, new policies, new forms, and diminishing or expanding sources of education program funding. The competency-based curriculum, they felt, could not quickly enough absorb and respond to these changes;

2. The logic of the competency-based curriculum, organized in performance levels, did not correspond to the reality of the classes, which were multi-level;

3. The student/workers had a very wide range of healthcare skills; some had acquired and practiced medicine in China. And they had a wide range of differing interests, needs and goals. Furthermore, with each new class of students, the needs and interests of the groups changed dramatically. A curriculum which in theory attempted to predict the needs and goals of learners in advance of a given class proved not to be useful in reality;

4. Throughout the competency-based curriculum, the reference point was the skills to be learned. While both teachers and students agreed that skills were important, they felt that the issues and problems faced by students in their lives at work and elsewhere was a better starting point. They felt that a curriculum based only or primarily on de-contextualized skills was too narrow for this setting. (It is interesting to note that the program at Kennedy Die Castings, Inc. had come to the same conclusion.)

From these needs, a curriculum-as-process approach was used; curriculum was built in the classroom, from learners' needs and organized around themes, or "commonalities in the experience of the learners." (This is described in more detail in section C.)

In this definition, "curriculum" has a more European meaning. It is not only a set of competencies or skills, although these are part of it. It consists of these, and instruction, and teachers, and students, and the classroom; the curriculum is the program and the process through which learners learn. Also, the definition of "curriculum" and every other aspect of the program is touched by a "learner-centered" or "participatory" philosophy, which Johan Uvin summed up when he said that one of the program's goals was to "exhaust the level of worker participation, given the constraints of the grant and the nursing home."

Summary of Curriculum and Curriculum Development Across the Four Programs

The range of curriculum definitions and models represented by these four programs is great. At Hampden Paper Company and South Cove Manor Nursing Home, curriculum is more often created in the classroom in response to student-articulated needs. In both programs, however, this requires a great deal of advance needs assessment and planning. At Boston City Hospital and Kennedy Die Castings, Inc. a set of written competencies is developed, taught, and revised on an ongoing basis. Of course, these are adapted to particular learners in particular classes.

In all four models, in different ways, both student/workers' needs, as determined by students, and the need for better-skilled workers, as determined by management (and labor) are addressed in one way or another. In no case are either student or employer needs ignored in the curriculum or curriculum development model. And in cases where organized labor is a partner, at Boston City Hospital and Hampden Paper Company for example, their perception of needs is also included.

B. Curriculum Goals: Range and "Central Tendency"

We asked coordinators, teachers, evaluation teams and, where possible, students what the goals of the program curriculum were. We attempted to determine how clear various participants were about the curriculum goals, and if there were any curriculum goals which were held by several programs.

We found that there were several goals which all four programs held; they wanted their curriculum to help workers:

1. Perform their jobs better;

2. Communicate better with supervisors, patients/residents, and/or co-workers in English; and

3. Gain new opportunities to advance up the career ladder.

We also found that there was a very great range of goals, some of which were unique to a program. For example, at Boston City Hospital, one curriculum goal was to provide the hospital management with people who are ready to be trained as technicians in order to address a labor shortage. At South Cove Manor Nursing Home one curriculum goal was to help student/workers better prepare to respond to federal requirements for certification for nursing assistants. Another goal of this program, as well as the Kennedy Die Castings, Inc. program, is improved safety. At Hampden Paper Company a goal of the curriculum (which although not articulated, also might be shared by other programs) was to increase decision-making capacity for workers so that they could use skills which in the past were left to management. At Boston City Hospital and at Hampden Paper Company GED attainment was a curriculum goal for student/workers. Two programs, Kennedy and South Cove Manor, also had as a goal that the curriculum and program should increase employee loyalty and/or retention.

C. Curriculum Development Processes at the Four Programs

In section A we touched upon the process of curriculum development used at each program. It will be described more completely in this section.

All four programs have ongoing curriculum development processes. In some cases, for example at Kennedy Die Castings and Hampden Paper Company the summer is a time for major curriculum work. There are many reasons why frequent curriculum revisions are necessary:

1. The workplace is dynamic. As work needs change and job tasks and descriptions change, a responsive workplace education program must change to meet these needs. Workplaces undergoing changes in technology, especially computerization, or workplaces affected by economic forces may experience major changes, and the curriculum for such a workplace education program may need frequent major overhaul;

2. These programs are new, and the curricula which were created or adapted for a specific site, are often rough and need to be refined;

3. All of these programs want to be responsive to a wide range of student needs. While some needs are currently addressed by parts of their curriculum, other needs are not. Also, although usually one person usually has the greatest responsibility for curriculum development at each program, other teachers, supervisors, advisory board members, and students are involved to varying degrees in the process at all of the programs.

Kennedy Die Castings, Inc.

The Worcester Workplace Education Collaborative has structured the time of Kathy Soderstrom, the full-time Head Teacher/Curriculum Developer, so that a major part of her job is curriculum development, up to 10-15 hours a week. Other teachers in the collaborative spend up to an average of two hours per week. This time is not a luxury; it is a necessity if the curriculum is to be tailored to student and company needs. Some of it is spent in direct observation on the shop floor, some in writing, revising, and trying out new materials.

To varying degrees student/workers, teachers, the company Vice President, and supervisors all contribute to curriculum development. Student/workers do goal-setting in class. Supervisors review and add to these goals in the classroom, and informally discuss workers' language needs one-on-one with the teachers. Robert Kennedy, the Company Vice President, has been involved to represent company needs; for example, to see that the curriculum addresses basic skills needed for the new quality assurance process. Ken Carson, the former Management Representative on the advisory committee, was closely involved in identifying needs, and from time to time, in presenting information to classes.

Boston City Hospital Curriculum Development Process

The current curriculum, created by Paul Guldenzoph, is the "daughter" of a curriculum written by Merle Coughlin and Mary Jane Schmitt who were teachers at the Community Learning Center in Cambridge. This curriculum seemed especially germane as it had been designed to prepare minorities for allied health careers.

Other sources of curriculum change were a City Roots (a GED preparation program for Boston school dropouts) curriculum, and materials suggested by the librarian at the Adult Literacy Resource Institute, James McCullough. In previous years, Paul said he had also been able to spend some time in the student/employees' work environment, and collected actual documents they needed to use at work, for example the Patient Care Conference form. Also, over time, Boston City Hospital teachers added to materials and competencies. In the first two years (when the program had other teachers) there were monthly meetings at which the curriculum would be reviewed, but Paul felt that more productive changes occurred as a result of a teacher pointing out a particular problem a student/employee was having. For example, the "Managing Your Manager" series in the curriculum resulted from such an informal needs assessment.

Although in past years the curriculum was reviewed by the workplace education program advisory committee, neither this committee nor the evaluation team had input into curriculum development this past year.

Hampden Paper Company Curriculum Development Process

When the program started, according to company President, Robert Fowler, they deliberately kept job-specific skills out of the curriculum. They wanted workers to see the program as providing life skills which would meet their own needs; but it soon became clear that employee participants wanted to have job-related skills; they wanted the workplace education program to be relevant to their basic skills needs at work as well as their other basic skills needs. As a result, the curriculum includes such diverse areas as "reading a road map,", "getting a GED," "learning accounting math to use in keeping books for a small business," "reading a grid or political map," and "chemical mixing."

The process for curriculum development is evolving, and has several different parts. Most of the curriculum development is in three areas: the "skills checklist," (i.e. the format students use to select competencies for their individual learning plan); job bidding (e.g. formula ticket preparation); and computer tools learning. All three areas evolve from needs determined by student/workers and supervisors. Curriculum development is done primarily by the Teacher/Coordinator, Janice Rogers and with assistance from the Program Director, Alexis Johnson, and input from the Advisory Committee.

Curricula are also adopted (and adapted) from other sources, e.g. the Jobs For Youth-Boston GED preparation curriculum, a math curriculum developed by Mary Jane Schmitt, and a process writing curriculum.

An exciting aspect of curriculum development at Hampden Paper Company is the tailor-made lessons which grow from supervisor and student-defined needs. Don Mirable, a supervisor who sits on the evaluation team, commented that he felt that tailor-made curriculum development (e.g. the chemical mixing formula ticket preparation) especially opens doors for employee advancement. This will be discussed further in section I.

South Cove Manor Curriculum Process

As described earlier, the curriculum development process at South Cove Manor Nursing Home was changed dramatically. The following describes the current collaborative model which was in place during the curriculum study.

Everyone affected by the workplace education program at South Cove Manor is involved in a remarkably collaborative curriculum development process: views are sought on the needs of learners from learners themselves, from their teachers, from the nursing home residents who receive their services, from those who are responsible for training and supervising learners, and from those who are responsible for the overall management of the nursing home. Much of this takes place through individual and small group meetings.

Johan Uvin, the On-site Coordinator/Instructor, and his colleagues assume that student/workers have the potential to identify what they need, and to go about meeting their needs, that with help from teachers they can facilitate their own needs assessment, set goals, and be involved in making their own decisions about how to learn.

Working from this assumption, needs of learners are elicited in classes as learners participate in "decid(ing) what need(s) to be learned, how, and why, and in choosing ways to document learning as it (takes) place" (Caldwell/Change/Uvin, 91, Chapter 4). Yet, if teachers ask too directly "What do you want to learn?" or "How do you want to learn?" students often can not answer with much sophistication. Instead, teachers help students to research their learning needs, methods and styles. This process often begins with questions such as: "What are you doing in your work? Where are you using English? What problems are you having that you could solve if you knew more English?" In the one-on-one planning sessions with students, these questions are the starting point for their research.

Answers to these questions are discussed in class and experiences are shared. There is an effort to determine if other student/workers have had a particular experience at work, if others share a particular problem, issue, or concern. With this information, teachers look for commonalities, for themes which grow from learners' experiences, themes which can be analyzed, and which will lead to new skills in language learning, new cultural and cross-cultural knowledge and attitudes, and learning about the work environment. The teachers encourage students to discuss their individual experiences, to learn if other students have experienced this, and have similar concerns or issues.

Once it is clear that a certain set of experiences and issues are common to students in a class, the theme is named, and specific examples of the theme, from the context of students' experiences are described.

From the examples, which are rooted in the shared experiences and concerns of the learners, specific learning activities are designed: role-plays, dialogues, and others. These address the theme , but also include specific language skills to be learned, and often cultural and work-related knowledge and skills.

Students engage in these learning activities in the classroom, and as they are learning new--and contextualized--language skills, they are also formulating answers to their questions about the social, political, and cultural contexts in which they are working, and to problems at work and in their lives outside work.

The last and perhaps most difficult step of the process, is documenting the learning outcomes from the activities in relation to the overall articulated program goals.

This process is not linear or deductive. It can be entered at any of these steps. For example, often the starting point for a lesson is a problematic incident at work described in class or in a meeting between a student and a teacher, supervisor or administrator. Once the process is entered, however, the cycle or spiral of steps is usually followed.

D. Where Curriculum Objectives and Contents Come from

One would expect the contents of a workplace education program curriculum to come from needs at work, but the Workplace Education Initiative state partners also expressed interest in knowing to what degree curriculum content is derived from student needs outside work.

We broke down the various sources of curriculum objectives and content into these two categories: 1) learning needs from the work environment; and 2) learning needs from outside work. These were further broken down into the sub-categories which appear below. From our interviews and from direct observation, we found that nearly all the programs had curricula which attempted to meet the needs in most of these sub-categories, and that all programs addressed both work-related basic skills needs and learning needs from other parts of student/workers' lives.

Sources of Curriculum Goals and Content

Following each sub-category below, we indicate how many programs have curriculum content which addresses needs from that category.

1. Learning Needs from the Work Environment Which Are Addressed in the Curriculum

   a. Language/Grammar Needs at Work: All programs

   b. Other Basic Skills at Work: All programs

      Examples of basic skills content in the curriculum which come from the work environment included: reading; writing; oral communication skills; math (measurement, and math for quality control procedures); cross-cultural skills and understanding; note-taking, decision-making, analytical thinking in English, organizing one's learning; and understanding patients' rights and workers rights.

   c. Issues at Work: All programs

      Examples of kinds of issues included: dealing with supervisors and co-workers; changes in the company; work slowdowns; quality circles and self-inspecting; getting along with people from other cultures; child care; and conflict resolution.

   d. Labor/Union Issues: Three programs

      Because Kennedy Die Castings, Inc, does not have a union, they did not identify union/labor issues. At South Cove Manor, however, Johan Uvin felt that the curriculum included labor issues even though the workplace is not unionized. Boston City Hospital and Hampden Paper Company included labor/union issues such as: reading the contract; reading and writing grievances; and speaking up at meetings.

e. Student/Worker Empowerment: All programs

As might be expected, "empowerment" was defined in different ways by different programs. At Kennedy Die Castings, Inc., for example, it was defined as being effective, speaking up, having self-confidence, solving problems, and increasing one's personal power.

2. Learning Needs From Outside Work Which Are Addressed in the Curriculum

a. Basic Skills Needs in Workers' Lives Outside Work: All programs to varying degrees

We gave some examples of this: reading and helping with children's' schoolwork; writing notes to a child's teacher; reading to children; reading the Bible; and doing income taxes. Kennedy Die Castings, Inc. education staff said that for their program this kind of learning was not emphasized, and was done on an ad hoc basic. At South Cove Manor, non work-related basic skills are more likely to be addressed in tutoring sessions, but they may also be addressed in class as students bring their needs to class. One example of this was a student who brought an official-looking letter to class which he had received from what he thought was a government agency. He needed to know what this letter was, and what response was required. (It was actually an unsolicited letter from a singles matching service!) Another example was a class field trip of beginning ESL student/workers to the Boston public library to get children's' books in English and books in Chinese for adults to read.

b. Language/Grammar Needs Outside Work: Three programs

c. Life Skills: All programs, at least to some extent, often integrated with work-related skills

d. Individual Growth: Three programs

South Cove Manor includes this in individual conferences, and Kennedy Die Castings, Inc. and Hampden Paper Company interpret this as part of the confidence- and self-esteem building that is woven into the learning activities in their programs.

e. Family Issues: All programs

This meant different things in each of the programs. For example, at South Cove Manor, family planning has been a major theme. At Kennedy Die Castings, Inc., holidays and customs, setting up a doctor's appointment, and immigration issues have been included.

f. Community Issues: All programs

Here, too, the issues varied in the four programs, but included: developing a community resource guide; neighborhood safety; children and child care issues; and registering to vote; among others.

g. Other Issues Mentioned

At Boston City Hospital career and educational planning are issues that are addressed in the curriculum in a formal way. This issue is addressed at other programs in various ways..

The Kennedy Die Castings, Inc. program staff pointed out that because of federal funding requirements, they do not formally include non work-related learning in their curriculum, that these needs are addressed, but informally and not nearly to the extent of work-related needs. The Administrator at South Cove Manor expressed a strong concern that everything in the curriculum in their program must be work-related, a view which was not shared to the same extent by the program staff interviewed. The Vice President at Kennedy, Inc. said that the curriculum must be work-related, but that this must not be defined too narrowly. He said that teaching an employee to read so he could read his medical bills and pay stubs, and teaching him to speak English well enough to deal with the staff at a medical health plan were both work-related as far as he was concerned. Of all four programs, Hampden Paper Company seemed least constrained in their attempts to address non work-related learning; but because both management and workers preferred it, they were moving to include more, not less, work-related basic skills learning.

E. Skills Addressed in the Curriculum

We wanted to know what basic and other skills were addressed in the curricula of the four programs. We found a great deal of consistency across the four programs. Table A in the Appendix: "Skills Addressed in the Curriculum", gives a detailed program-by-program breakdown of the information summarized below.

The following basic English language skills were included in the curricula of all four programs: listening, speaking, reading, and writing. (Speaking was included, but not a priority at Hampden Paper Company and writing was included, but not a priority in the curriculum at South Cove Manor.) All four programs included grammar in the curriculum, and especially in the two ESL programs, grammar was integrated into the topics and themes.

All four programs included some computation skills, but as far as we could see, no program had a comprehensive, systematic approach. At Kennedy Die Castings, Inc. and at South Cove Manor Nursing home, computation skills were not identified as a need to be addressed.

All four programs included life skills learning, but these were not a priority at Kennedy Die Castings, Inc. , at South Cove Manor Nursing Home or at Boston City Hospital.

All four programs included: the ability to work independently; critical thinking and problem solving skills; and learning about others' cultures.

Teamwork/cooperation was included in the curriculum at Kennedy and Boston City Hospital

Management skills were included to some extent in two programs: Kennedy and Boston City Hospital

Secondary level subject areas were included only at Hampden Paper Company and Boston City Hospital, where students can prepare for the GED.

In response to a question about other skills which the curricula included, we received the following answers:

Kennedy: Co-operative learning skills

South Cove Manor: Metacognitive skills, such as learning what kind of learner one is, by being exposed to different kinds of learning activities and reflecting on their efficacy.

Boston City Hospital: Note-taking skills, test-taking skills, and career and life planning skills.

F. Participants in Curriculum Decision Making: Students, Supervisors,and Others

Who participates in curriculum decisions, and how, varies across the four programs.

Kennedy Die Castings, Inc.

There is no formal process here for students, as a group, to participate in curriculum decision making; but collaborative student goal-setting in class has resulted in curriculum changes. And students who we interviewed felt that they had had an opportunity to set goals in the classroom, individually and as a group.

Supervisors participated in the class goal-setting process, too, when they attended a class early in the spring cycle to comment on, critique and add to the learning goals students had generated. Below are the results of that goal-setting session:

The two questions which prompted the list of goals below were: "Why do we need English?" and "What do you need to learn to do your job better?" The following were some of the students' responses and supervisors' additions. (Those with an * were added by supervisors.)

- Drive to work (read signs)
- (Get U.S.) citizenship
- Speak with supervisor, co-workers, nurse, Ken Carson (Human Resources person)
- Understand paycheck
- (Talk with) doctors and hospital (personnel)
- Read and write on forms, (do) "paperwork"
- * (attend, understand, benefit from) training programs at Kennedy
- Identify quality defects:
  -- Identify actual defects and complete the paperwork to record these (reading and writing)
    a. What are they?
    b. Tell the supervisor/quality control. Speak and understand English.
    c. Speak with co-workers.
- Safety
  -- read signs
  -- give warnings
  -- heed warnings
- Understand your supervisor
- *Problem solving
- *Understand simple directions (especially in cross training)

The list of goals which was produced by students was not significantly changed by supervisors; perhaps this is because quality assurance changes in the company were driving this list for both workers and supervisors.

Robert Kennedy, the company Vice President, has reviewed curriculum, and given it overall direction. He pointed out that Ken Carson, the management representative on the advisory group, has been involved in developing some curriculum units (e.g. "Aluminum Die Casting at Kennedy"), and the guest speaker component. Robert Kennedy, too, occasionally teaches a class on die casting principles and defects, and he has narrated a slide show for the class.

From Robert Kennedy's point of view, the needs of the curriculum come in large part from the needs of the company, and the company must be responsive to the changing needs and demands of customers and the industry. Curriculum decision-making is affected by these. For example, now the company requires statistical process sheets as part of quality assurance; these require writing skills. Machine operators are now responsible for quality, not a quality control inspector; in order to do this they have to be able to write in English to fill out tags. And, as Robert Kennedy put it, " Increasingly workers have to understand the process as well as complete the task." These changing demands create needed changes in the curriculum.

Boston City Hospital

There is no formal involvement of students in curriculum decision making at Boston City Hospital, but Paul Guldenzoph says that the problems they present to him in class, and in individual meetings, are the sources of changes he makes in the curriculum. Paul also pointed out that their annual evaluation of the courses leads to curriculum changes. Paul said that supervisors are involved informally, without necessarily knowing that their comments have been a source of curriculum change.

South Cove Manor Nursing Home

By contrast, at South Cove Manor Nursing Home, students have a great deal of choice, both individually and as a group. The curriculum is formed from their articulated needs for English language skills in work and other life contexts. Most of the needs they bring appear to be work-related, although students mentioned language needs related to greeting and interacting with American friends, cooking, asking for directions on the street, and using the subway as examples of non work-related language needs.

Hampden Paper Company

At Hampden Paper, individual students determine what they will study. With the exception of the GED curriculum (which has its own set of objectives because it is designed to prepare students for a prescribed test), an individual curriculum is generated for each student. For example, students can work on comparison shopping, tax forms, balancing checkbooks, writing letters, as well as preparing for job bids, and learning to do word processing for work-related or other needs.

Students also have a great deal of say about what learning materials they use: books, workbooks, formula tickets, regular and adult new reader newspapers, the computer, maps, etc.

At Hampden Paper Company supervisors complete a feedback form, sometimes orally, sometime in writing, on program attendees from their departments. Sometimes this information has an impact on the curriculum. Supervisors also participated in the development of the recent skills checklist, as did the advisory committee.

G. The Instructional Setting

The sections on instructional methods, activities and materials which follow can be better understood in the context of each of the four different physical instructional settings. For this reason, these settings are briefly described below.

Kennedy Die Castings, Inc.

If you visited the beginning level Workplace ESL class at Kennedy Die Castings, Inc. you might see a predominantly male group of 8-10 Southeast Asian, Hispanic and Polish student/workers in the company lunchroom known as the cafeteria. A few employees who were not students might come in and out to rest, use the food vending machines, or to learn by watching and listening from the sidelines. You would hear the occasional noise of the vending machines, and the constant background noise of machines on the shop floor outside. You would see tables and chairs arranged in a "U" shape in a comfortably large space, facing a felt board and perhaps teacher, Kathy Soderstrom. Although the room doesn't establish a sense of belonging to the class, it is functional, cheerful, comfortable enough, and makes the program seem very much a part of the work environment.

The day we visited the class we observed Kathy doing a learning experience chart on weather, saw the class reading a weather forecast from the Worcester Telegram and Gazette, listened to questions (from Kathy) and answers (from students) about holidays and days of the week. We also saw diads of students asking and answering weather-related questions, and Kathy circulating to help them. There was some writing activity--filling in the blanks-- followed by reading out loud, and conversation about weather pattern language. The lesson included embedded language skills on the use of the present, past, and future of the verb "to be."

Boston City Hospital

Classes are held in comfortable, well-lit, spacious college-style classrooms in Boston City Hospital's training wing. The classroom has a teacher's desk up front, and plenty of chalkboard space to write on. In the pre-technical science and study skills class size there were 12 students enrolled, with 8 attending the day we visited. In the ABE class only 4 students attended when we observed the class. The classroom, used by both classes, was admirable in every way except its temperature. During one visit it was too warm; during the other much too cold.

The day we visited the Science/study skills class, we saw group instruction, primarily lecture, delivered college-style from lecture notes, with chalkboard diagrams, and discussion. Students were practicing taking notes, and occasionally referring to textbooks. There were few teacher-prepared handouts in this class. As the purpose of this class is to prepare student/workers for post-secondary training programs, where there will be lecture, note-taking and textbook reading, perhaps what we saw accurately simulated what they will experience; however, the teacher, Paul Guldenzoph, saw his purpose as helping to reveal the mystery of this learning model by breaking down new information into small, digestible pieces, and by encouraging and respectfully answering questions, a style rarely found at the college level.

In addition to the classroom, Paul Guldenzoph has a two-room office space nearby where he can tutor and counsel students and store instructional materials and supplies.

Hampden Paper Company

Hampden Paper is proud of the space it has made available in the factory for its classroom. In this comfortable, quiet space, tables and chairs are arranged so that students can work independently, under teacher supervision, or work one-on-one with a teacher or colleague. There are two computers, plenty of wall space for maps, charts, and other instructional media, and there is adequate space for keeping instructional materials. Unfortunately, there is no private space for counseling, but the audio-visual room next to the classroom can be used for this purpose.

Student/workers attend the center by appointment as their schedules permit, usually up to 5 hours weekly. Since the fall of 1990, each student has had a "skills checklist", a sort of individual education plan. This list serves as a planning tool, but also as a way to record what students are studying and what they have learned. Students doing GED preparation use the student record included in the Jobs For Youth GED curriculum. There is a very wide range of skill levels in the center: of the 11 students who visited while we observed, 2 were ESl, 3 ABE, 4 GED prep., and 2 Post-GED.

South Cove Manor Nursing Home

South Cove Manor has two rooms available for classes: a small, well-lighted physical therapy room and an administrative conference room. The conference room, on the first floor is quiet, but very public; its glass walls face the street and the nursing home reception area. Both rooms are rather small, especially for a class of ten students.

The physical therapy room offers privacy, has a storage cabinet for learning materials, and a small, portable, erasable marker board. (At one time it also had a chalkboard.) It is reasonably quiet, but some noise drifts in from the hallway where residents or staff play music, sing, or converse. During both visits we found this room rather warm, but no one else seemed uncomfortable.

H. Instructional Methods and Activities

We wanted to know what instructional methods and activities were used in the classrooms at the four programs, and how consistent this was across programs. We also wanted to know if a variety of methods and activities was used at each program. We interviewed teachers and/or teacher coordinators and students, and we observed classes at each program. The information from our observations was consistent with the interviews. For Breakdowns of these data by program see Table B: "Instructional Methods and Activities" in the appendix. Surprisingly, only three methods or activities were used at all four programs: vocabulary developed from on-site responsibilities; case studies; and drill and practice.

However, several methods/activities were used at three of the four programs, including: discussion (Hampden Paper formerly used discussion when students met in groups); simulations or role-plays; teacher modelling of skills for the class; tutoring; and viewing videotapes.

A few methods/activities were used at half of the programs: co-operative learning activities; dialog journals; and picture stories.

The following were used by at least one program: presentation/lecture (a major method at Boston City Hospital); reading comprehension derived from family stories; choral work; games; reading articles, charts, etc. from newspapers; discussing tools and defective part samples; language experience charts; computer tools, such as word processing and spreadsheets; and workbooks.

Each of the four programs used a variety of methods and activities. From observation of a class, and from the curriculum, it was clear that the Kennedy

Die Castings Program uses a very wide variety. Although the two classes we saw at South Cove Manor did not show evidence of it, it was clear from curriculum materials we saw, and from interviews, that South Cove, too, uses a very wide variety of methods and activities.

I. Instructional Materials

We were interested to know if teachers used both "home-grown" and commercial materials, and both print and non-print (including tactile) materials. We were also interested to see the quality of teacher-made materials. And we wanted to know how commercial materials were screened and by whom.

In all four programs both teacher-made (or teacher-adapted) and commercial materials were used, although the degree varied greatly in the four programs. And in all four programs both print and non-print materials were in evidence. Non-print materials which we saw in the classroom or were told about included: drawings, diagrams, cuisenaire rods, charts and graphs from newspapers, computers, slide shows (the Kennedy company tour slide show) videotapes, computer software, work tools, safety equipment, and defective products.

We did not get a clear picture of how commercial materials are screened. As far as we could determine no program had a formal screening process, but left this to the education program staff on an ad hoc basis. Yet, the materials we looked at seemed free of notable cultural, racial, and gender bias, and were written for adults, not children. Screening does not appear to us to be a problem.

At Kennedy Die Castings, teacher-made (actually curriculum developer and teacher-made) materials are extensive, and are well documented. Many are inspired by "English at Work -- A Toolkit," a model which emphasizes using realia from the workplace and themes of student interest and concern. A relatively complete workplace English curriculum was specifically designed from scratch for Kennedy Die Castings. It is a remarkable, if not yet refined, curriculum product, and a model for other programs in the initiative to emulate.

At South Cove Manor, too, most of the instructional materials are teacher-made. Two curriculum products have been produced: a competency-based resource manual; and, in collaboration with the Continuing Education Institute, of Needham, a curriculum guide for nursing assistants, which will be published later this year.

Hampden Paper Company

A very creative and successful "chemical mixer formula ticket" curriculum unit was developed at Hampden Paper by substitute teacher, Margaret Lobenstine. The process and the product are together an exciting example of an original and significant curriculum materials development effort. This kind of work, we must note however, requires a significant amount of a teacher's time. Below is a brief description of the process Margaret Lobenstine used to develop this unit. Copies of some of the materials are also included in Appendix C.

The Formula Ticket Lessons:

A set of "Chemical Mixer Formula Ticket" lessons was developed for one student/worker, a person with limited English proficiency, who wanted to be able to successfully read and correctly carry out the procedures for mixing certain chemicals.

The information a worker needs in order to perform this chemical mixing task is contained on a single-page "Formula ticket". (See Appendix C for example). The information is succinct and contained within various areas of the form in an order which apparently makes sense to the chemists who make out the formula tickets, but which is not the order in which the steps of the process are carried out by a production worker. Because it assumes thorough knowledge of the process, and is a set of job specifications rather than a set of instructions for carrying out the process, the Formula Ticket is difficult to read, even for a native speaker of English. For someone who has no knowledge of the process to which it refers, it would make little or no sense.

The process used to develop this "mini-curriculum" on the Chemical Mixer Formula Ticket was as follows:

1. The teacher visited the work area, got a copy of the "Formula Ticket" and did a step-by-step analysis of the chemical mixing task. The task analysis was reviewed for accuracy by the work supervisor.

2. The teacher interviewed the student to determine if there was an area of his experience which was analogous to chemical mixing. In this case, there was. The student was an experienced wine-maker, and wine making is a process which requires that certain steps be done in a prescribed order and with relative precision in mixing amounts. The teacher asked the student to explain to her, to teach her, how to make wine. Together, teacher and student broke into small steps the directions he gave her. They also discussed what the consequences would be if he didn't pay attention to exact amounts.

3. Then the teacher listed the steps in following a Chemical Mixer Formula Ticket, and as she went over them, with an actual formula ticket in hand, she drew upon the analogy of his experience with wine-making. As they did this, they focused on the logic of the procedure, the critical understanding of the process, not rote memorization of procedures. She asked, for example, "What would happen if you let the mix sit for half an hour before filling in the temperature/viscosity ticket instead of after?" Also, she introduced new vocabulary words as they were used in the process.

J. Staffing, Staff Orientation and Staff Development

Staffing:

Staffing patterns at the four programs differ greatly. This is based in part on whether the program is a single site or part of a multi-site program, how many classes are offered, and funding levels, among other factors.

Kennedy Die Castings, Inc.

The Worcester Workplace Education Collaborative has several workplace education sites. There is a Project Coordinator for the Collaborative, and instructors at each site. At Kennedy, the instructor is also the Head Teacher/Curriculum Developer for all the sites.

Boston City Hospital

BCH has one paid, full-time staff person; he is the Teacher/Counselor and Program Coordinator. His responsibilities include administration, teaching, curriculum development, counseling, coordinating and acting as a liaison between employees, supervisors, and upper level administrators. There is also a part-time volunteer math tutor.

Hampden Paper Company

Hampden Paper has two staff people, the Program Coordinator from International Language Institute of Massachusetts (4 hours per week), and a Teacher/Coordinator on site (25 hours per week). (During the period of this evaluation, because Janice Rogers, the Teacher/Coordinator had been on leave, we also interviewed her substitute, Margaret Lobenstine.) The Teacher/Coordinator is on site from 12-5 PM, every week day.

The Teacher/Coordinator teaches, assesses (with TABE pre- and post-tests as well as ongoing assessment), and develops the curriculum and instructional materials (which often involves starting from scratch and drawing on what's available to meet student-articulated needs).

South Cove Manor Nursing Home

South Cove Manor has three staff: a Project Coordinator (3.5 hours/week), a full-time On-site Coordinator/Instructor, and a part-time Instructor (30 hours/week). This staffing level allows 5 classes per week as compared, for example, with one class per week at Kennedy Die Castings, Inc. It also allows for needed curriculum development time.

Staff Orientation and Staff Development:

We asked about staff orientation and staff development activities at two of the programs we visited. From these interviews and from written materials we learned the following:

Kennedy Die Castings, Inc.

At Kennedy, teachers are oriented using the Quinsigamond Community College Adult basic education teacher orientation, followed by more specific orientation activities for workplace education teachers, including: a visit to the workplace; and from photographs of the workplace, students describing their jobs and the workplace to the new teacher.

Most staff development activities are not planned out, but are available as opportunities arise. 20 paid hours a year per instructor slot are available for outside professional development. This is used primarily for SABES (Mass. System for Adult Basic Education Support) staff development activities, and conferences, and is part of the teacher's contract. In addition, orientation and summer staff curriculum development are also paid staff development time, and staff are encouraged to network with staff from other adult education programs.

Teachers are paid for two hours per week of staff preparation time and they are paid for required meetings. One- or two-hour staff meetings are held each month to review curriculum, discuss workplace education issues, network, problem solve, share ideas, and collaborate to write curriculum.

Hampden Paper

Staff preparation time is paid for and curriculum development time is included in this.

There is no formal process for staff orientation. When Janice Rogers, the on-site Teacher/Coordinator, was hired there were orientation meetings and a company tour at her request. When a long-term substitute teacher was needed, for example, there was a 2-3 week overlap so she could learn the ropes with

Janice's assistance. Also, There is paid staff development time to attend in-state and out-of-state professional conferences, in-house (International Language Institute) workshops and SABES workshops.

South Cove Manor Nursing Home

The most developed staff orientation and development plan of the four programs is that at South Cove Manor. The 12 hours of Staff orientation there includes: an orientation to and tour of the facility; working one eight-hour shift; meeting informally with program participants; learning about the goals, structure and patient care delivery processes; learning about the history, philosophy, and goals of the program and the relationship to South Cove Manor goals and to the agenda of the National Workplace Literacy Movement.

Following orientation, staff participate in 6 hours of training for the job. Training includes an introduction to the functional context approach; an introduction to the program's initial and current approaches to curriculum development as well as other approaches; information about human, physical, and materials resources, work-related policies, and record-keeping and curriculum documentation procedures. They also have 10 hours of on-the-job training including: meeting with and observing a peer teacher, team teaching, meeting with supervisory/licensed staff, taking the national nursing assistant examination, and other activities.

In addition, teachers participate in a number of ongoing development activities, including: feedback sessions, advisory committee meetings, meetings with nursing home personnel, monthly peer observation, mentor coaching, monthly observation by the coordinator, weekly meetings of all program staff, monthly workplace education teacher sharing sessions at the Adult Literacy Resource Institute, professional development projects, conferences and workshops, and other activities.

K. Impact of the Curriculum on the Workplace Culture

We were interested to know if participants felt that the curriculum had an impact on the company culture , its practices, policies, and/or priorities. This is very difficult to know precisely, but in response to our questions we received a generally positive response, indicating that most of the local level partners felt, at least, that there was such an impact.

At Kennedy Die Castings, for example, Ken Carson, a member of the evaluation team, pointed out that the curriculum has had an impact on safety. As an example, he suggested that if six years ago they had asked workers to wear earplugs, the workers wouldn't have understood. Now, he said, this can be explained in English.

Company Vice President, Robert Kennedy, said that the company lunchroom used to be segregated. Joking took place only in employees' native languages. Now, he says, there is more comraderie.in English, across cultures. The Vietnamese sit with the Italians; men with women. Now people look at what they have in common. There is more social, non work-related use of English. He attributes this to the program and its curriculum.

The evaluation team members felt that because the class is held in the cafeteria, a very public place, it is well-known, and is seen as part of the company culture, helping workers and helping the company.

All members of the evaluation team felt that worker self-confidence in using English had increased as a result of classes. Of course, it is hard to know what part the curriculum has played in this.

The education staff at Kennedy Die Castings, Inc. program pointed out that workplace education fits well with company goals, especially for increased interactivity among employees, that company culture is being affected in a direction in which the company administration wished it to move. They believe that the curriculum has also helped to change majority culture employees' perceptions of linguistic minorities, that it has resulted in increased sensitivity to the difficulties of immigrants who do not have sufficient English language skills needed to solve problems; they believe the curriculum (as part of the program) helps to break stereotypes. They also believe that workers' perceptions of each others' cultures have been changed as a result of the curriculum.

At Boston City Hospital, evaluation team members suggested that there is evidence of improvement in work-related skills on the units. For examples, employees better understand medical terms on the "Activities of Daily Living" sheets. They also thought that there was a change in employees' attitudes toward their education. Education (classes) is now part of the workplace, not an exception. (The SNAP program, they thought, has also helped to achieve this change.)

At South Cove Manor Nursing Home, some evaluation team members observed that there is now less need to translate basic instructions such as how to take a temperature; that health workers have less difficulty filling out basic forms in English; and that there is increased social interaction between aides and residents, a friendlier atmosphere.

L. The Multi-Level Classroom

The multi-level classroom presents difficult problems for instruction, especially group instruction. We wanted to know if a program could offer classes at different levels and we discovered that there are several obstacles: 1) small programs often don't have enough worker/students for each level to warrant a single-level class, and they lack resources to provide enough teachers/teaching time to accommodate this; 2) if classes are offered during work time, it is often difficult to free up enough worker/students who need the class at a certain level at the same time; and 3) many worksites do not have enough physical space to offer more than one class at a time, further constraining the number of levels which could be offered.

If the multi-level classroom is a given, and it probably is for most small workplace education programs, then we wondered what can be done to address individual students' needs within the multi-level classroom?

At Kennedy Die Castings, Inc., classes are multi-level and the curriculum is structured to accommodate this. For example, activities lend themselves to different levels, and within the activities students are often grouped according to ability, with the teacher, not the "curriculum" doing the levelling. Activities are more open-ended, not too structured, not too prescriptive, and can be easily adapted a varied to suit a particular class.

At Boston City Hospital, there are two classes. One is at the post-secondary preparation level; the other is a multi-level class ranging from very basic literacy up through the GED. Tutoring is amply available outside of class, and this is especially useful for students reading and writing at the most basic level, and for others who need additional help.

At Hampden Paper Company, one teacher addresses ESL (all levels), ABE (all levels), GED prep, and computer literacy. Everything is individually designed except the JFY GED curriculum. This is a huge challenge for that teacher, but it does address the problem of levelling. Each student is working at his or her own level.

At South Cove Manor Nursing Home, there are two class levels: Beginner and Intermediate. The beginner class is 6 hours per week, and the intermediate class 2 hours per week. Still, within the beginner level especially, the classes are multi-level. The range of student needs is addressed through a theme-based curriculum, generated from the needs and interests of students, but with attempts by the teachers in the classrooms to offer several levels of skills. Although, in our brief observations, we did not see much evidence of different levels being addressed in either classroom, we believe that this does take place in some classes.

We think that the approach used at Kennedy Die Castings, Inc. and especially at South Cove Manor Nursing Home, a theme-based approach based on language learning needs which emerge from experiences at work, holds the most promise for the multi-level workplace ESL class. But as two students on the South Cove Manor evaluation committee pointed out when asked if they felt they had a choice over the curriculum objectives, when everyone in the class is at a different level, and when everyone has different needs, it's difficult to get everyone's needs met. They thought the best solution was to focus on job-related learning, where there were more commonly-felt needs (and themes).

Individualized tutoring, found at South Cove Manor, Boston City Hospital and at Hampden Paper, is also a strategy which offers some promise, although we did not examine this strategy in this study.

Unfortunately, one of the most promising strategies in workplace education for addressing different levels, computer-assisted instruction, was not used by any of the programs. One explanation given for this is that the federal workplace education program discourages spending its dollars for capitol equipment such as computers.

M. The Job Description for a Workplace Education Teacher

The state level partners had asked us to determine what a workplace education teacher's job description should look like, including the skills, background and qualities needed, and the tasks of the job.

To answer these questions we wanted to know what tasks teachers or teacher/coordinators currently did, and what experience, skills, and knowledge students, teachers, and evaluation team members thought were needed to do this job well. What follows is a synthesis of this information from these varied perspectives, and from all four programs.

The Duties of a Workplace Education Teacher

All of the following are currently duties of workplace education teachers or teacher/site coordinators:

- Teach and/or tutor student/workers: ESL; beginning and intermediate level work-related basic skills; secondary level basic skills; computer literacy (using computer tools and feeling comfortable with the computer); etc. In some cases, where students are learning English as a Second Language, teach using two or more languages. Use a variety of methods, activities and materials. Try to relate student learning styles to this variety. Use individually-paced and group-paced modes. Help students progress at their own rates. Use a learner-centered approach (as opposed to one which is teacher-centered, book centered or test-centered).

- Create curriculum (including curriculum materials)
- Review and select commercial curriculum materials
- Recruit students
- Assist with student intake into the program
- Assess students' skills , interests, needs, and goals
- Counsel students
- Research the workplace: the nature of the work, the relation of the production or service parts to the whole organization, the relationships of various levels and kinds of personnel, the "corporate culture", the specific work each of the workers in the program does, the materials (especially written materials) used in the work. Get to know workers and supervisors on a first-name basis
- Meet, network with, and collaborate with workplace education teachers in other sites or other programs
- Learn from students, supervisors, union representatives, company management, and others
- Assist students in learning about each others' cultures, about the "company culture", in the case of recent immigrants, about "American culture." Assist supervisors and other managers to understand student/workers' cultures
- Publish (or assist students to publish) a program newsletter and produce other written materials and carry on other activities which make the workplace education program known within the organization

In the case of teacher/coordinators:

- Administer or assist in administering a grant (record keeping, proposal writing, grant management)

- Assist with coordination of local workplace education team for purposes of curriculum development, curriculum review, program evaluation, and problem solving. Negotiate, and help various partners negotiate their differences. Earn and maintain everyone's trust, and assist all partners to build or maintain trusting relationships

- Evaluate or assist in the evaluation of the program

Qualifications for all teachers:

- B.A. (or graduate degree) in education, psychology or social work. (Teaching degree)

- Adult basic education (including adult ESL) teaching background and orientation toward adult (not K-12) education. Experience working with "non-traditional" adult students

- Curriculum development experience

- Counseling skills

- Able to relate well to adults, caring about adult students, having respect for them (so, as one student put it, students can ask questions and "not feel dumb")

- Good interpersonal skills

- Professional appearance and behavior

- Being a "team player" (not too independent, being able to put oneself in the shoes of a supervisor, employee, funder, or union representative so that the needs of students, management, and the funding source are met)

- Being patient, fully understanding that progress is usually slow

- Able to help students at different levels

- Having a sense of humor

- Being flexible, not rigid, able to go with the flow

- Being able to juggle a lot of responsibilities at once

Desirable Qualities, accomplishments, or experience for all teachers:

- Peace Corps or VISTA volunteer background, or other significant cross-cultural experience

- Experience working as a worker

- Understanding the kind of work student/workers do, understanding the situation of hourly production or service workers, the nature of their jobs

- Background in pre-vocational education

Additional Qualifications for ESL Teachers:

- Understand, firsthand, through having struggled to learn another language, what a student/worker acquiring English is going through learning to think in another language

- Background in English and/or ESL teaching

Desirable background for ESL Teachers:

- Bilingual or multi-lingual (in English and students' first language)

The above job description is ideal, and not every workplace education teacher will fit it fully. It points the way, however, in hiring and in planning staff development; if widely shared with workplace education teachers, and with those seeking such employment, it may also give teachers a standard against which to compare themselves for their professional development.

IV. Innovations and Strengths at Each Program

Innovations:

We asked those we interviewed at all the sites to identify what they thought were their program's innovations. Their comments appear below followed by our observations on these and other innovations at the programs.

Kennedy Die Castings

The evaluation team suggested that Job-specific English language learning ("shop vernacular") has allowed immigrant employees with limited English proficiency to take higher jobs, that this opens doors for people in the shop. They also thought that the kind of classroom learning they offer is relevant, integrated with learning needed for work on the shop floor, and that this is an efficient way to learn.

Kathy Rentsch and Kathy Soderstrom, the education program staff, thought that the Worcester Workplace Education Collaborative new adult education orientation for the staff of all their programs was an innovation, and that their holistic curriculum, which is not driven by isolated skills, and drill and practice, is an innovation. With it, students learn real language in the context of actual work and life tasks.

Boston City Hospital

The evaluation team cited four innovations:

1. A "Managing your Manager" unit as an example of the curriculum being tailored to this particular workforce;

2. Bringing into the classroom to talk about their work people who do different jobs in the medical field;

3. Helping workers figure out their pay stubs; and

4. Workplace-based research projects: for example, reading charts as a research project for the science/study skills class.

Paul Guldenzoph added two:

5. Flexibility which allows student/employees to do individualized work on their lunch breaks; and

6. The teacher/counselor/coordinator job which allows for a wide variety of roles, and (because Paul does everything) fewer meetings!

Hampden Paper Company

The education staff at Hampden Paper cited four innovations:

1. Individualized curriculum development, e.g. the Chemical Mixer Formula Ticket;

2. Use of computers;

3. Eliciting goals from learners; and

4. A new "Skills Checklist" which both serves as a menu from which to choose learning objectives, and since it was generated from needs identified by learners and supervisors, is a record of these needs and issues.

South Cove Manor Nursing Home

Johan Uvin suggested that the new theme-based curriculum-as-process may allow students at different levels of skills all to engage with the theme, and all to improve their language skills. Such themes as: under-employment, mis-communication with residents, relationships with English-speaking staff, views of learning and teaching, understanding policies and procedures, and career advancement, because they affect student/workers at all levels of skills, leave room for everyone's participation and language learning.

Commentary

The innovations cited at the Kennedy Die Castings, Inc. program may seem obvious in the context of workplace education, but against the background of traditional elementary, secondary and higher education, they point out that workplace education, as practiced at Kennedy Die Castings, and in many other companies, is itself an important innovation and that curriculum which integrates work and learning is at the center of this innovation.

We would agree that contextual curricula, particularly at Kennedy Die Castings and South Cove Manor Nursing Home, are innovative, and that the processes by which these are developed, although in many ways different, are exciting contributions to the art of workplace education curriculum development.

Strengths:

Each of the four programs has considerable strengths in the area of curriculum. From our observations, reviews of materials, and interviews we would bring attention especially to the following effective curriculum and instruction features of these four programs:

Kennedy Die Castings, Inc.

1. English That Works, developed by Passeri and Soderstrom, 7/90. This is an impressive, home-grown, contextual curriculum developed for Kennedy Die Castings, Inc. It is extremely useful to workers and to the company. It also

includes, in the Teacher's Reference Guide section, a great list of instructional strategies to be used in the classroom;

2. Closeness to the context of students' lives and needs, to real workplace tasks and to other important tasks, problems, issues, and concerns of student/workers' lives;
3. Theme-based instruction which addresses the needs of a multi-level classroom, and which includes integrated reading and writing as well as listening and speaking; and
4. Exceptionally talented teaching. We observed in the classroom Kathy Soderstrom's use of a very wide variety of methods and materials, the integration of listening, speaking, reading and writing skills in theme-based lessons, attention to individual as well as group needs, and an exciting pace of energetic language learning.

Boston City Hospital

1. The Pre-technical science and study skills course is an important step in the healthcare education and training career ladder, one which is missing from most hospitals;
2. The combination of classes, significant tutoring time, and individual career counseling is a strong design. The attempt to level the classes is also moving in a positive direction.

Hampden Paper

1. Individually-tailored curriculum development;
2. An individually-paced GED curriculum which appears to be effective in meeting students' needs;

3. Student/workers learning to use computers as tools for word processing, accounting, and filing data;

South Cove Manor Nursing Home

1. An extremely well-thought-out, theme-based, curriculum development process;

2. Accessibility of classes, given that there is no release time;

3. Exceptionally talented teaching. The use of role-playing/simulation in Johan Uvin's class, the dramatic enactments of high-interest problems to be examined, and solved with newly acquired knowledge and language, is intensely involving and motivating.

4. An exciting collection of high-interest, authentic, home-grown, site-specific teaching materials which are used in enacting scenarios of problems drawn from the contexts of students' experiences.

There are also some strengths across the four programs which we observed.

1. Every program addressed student/workers' basic skills needs in the contexts of work and other daily living needs, as perceived by management, labor, students themselves, and instructors. This is facilitated by the state and local partnership model.

2. Every program employed talented teachers and teacher/coordinators who had experience teaching adults, and who believed in a learner-centered approach (although these were implemented differently at each program).

3. Every program was engaged in some level of original curriculum development or adaptation of curriculum. In every program, curriculum was dynamic, changing to better respond to the needs of student/workers and the workplace.

4. At least three of the four programs had published student writing: for example, Kennedy Die Castings' student biography books, Hampden Paper' "Our Words", which includes student writing and photographs, and the South Cove Manor workplace education program newsletter and student writings collections, "Write From the Floor."

5. All four programs make a number of efforts, in person, and through written materials, to keep their programs visible within the workplace settings, and to both draw upon and influence "company culture".

Other Observations:

As we reviewed the findings, the many references to "culture" "cultural sensitivity" and "cross-cultural knowledge and attitudes" reminded us that across the Workplace Education Initiative, the cultural context is critical.. Although this was not an area which this study intended to address specifically, it was clear that it is one which programs must consider. Needs for workers to learn about and be sensitive to each others' cultures; for supervisors to learn about workers' cultures; for newcomers to learn about "American" culture; and for everyone to understand and have a part in shaping "corporate culture" were referred to throughout our interviews.

These needs can and are being addressed in a number of ways. Programs suggested hiring teachers who have experienced the struggle of learning another language, and understanding another culture, people who are bi- or multi-lingual and bi- or multicultural. The curriculum and teaching practices and materials can draw upon cultural comparisons in the context of instruction. Teachers can help students to understand the similarities and differences between the company/corporate/institutional culture, majority culture in the U.S., and their own ethnic cultures on such critical work-related issues as: goal orientation, the use of time, family responsibilities, the use of one's first language, the use of formal and informal English, giving and receiving praise and criticism, etc.

V. Areas for Growth at each Program

These are all relatively new, and small programs; compared with larger programs with more teachers, space, materials, and other resources, there are many areas in which there is room for their growth.

There are several problems common to all programs:

1. Students who enroll in these programs will have difficulty moving from the most beginning levels up through a high school level, if this is their goal. If they cannot move to the next level and receive adequate services, the gains they make in these programs may be lost.

   The programs which do not offer a full range of basic education services, from basic literacy through post-secondary preparation, are not well articulated with other programs in the adult education system which offer the education services they lack. In some cases, where there is an articulation plan, because of lack of funding in the system, students are not able to get seats when they are ready to move to the next program. For example, the Kennedy Die Castings program is part of a larger community college collaborative, which in the past has been able to provide students who were ready with seats in programs at the next levels. This year, seats were not available.

   Programs such as those at Boston City Hospital and Hampden Paper Company which do offer a wide range of levels have spread their resources too thin to deliver all these services equally well. In both these programs, one person is asked to teach everything: ESL, basic literacy, five high school level GED subject areas, and computer literacy. Even the most gifted teacher must find some of these tasks a challenge to do well, and if that teacher is replaced, finding someone who can handle the same areas equally well is also a difficult challenge.

2. None of the four programs we studied has a systematic annual review of the curriculum by the advisory boards. In our opinion, curriculum review, and review of program outcomes, should be major advisory committee activities.

3. There are no computers at three of the four programs, and computers are not yet well used at Hampden Paper. While they cannot replace the need for teachers, they can greatly assist the teacher who knows how to use them well. With training, and good software, such a teacher should be able to rely upon computer-assisted instruction for math teaching, for example. And some computers now have digital sound applications which would be very helpful for ESL students who wish to practice on their own. And word processing can be a very positive and powerful tool for encouraging writing.

There are also specific areas for growth at each of the four programs.

Kennedy Die Castings, Inc.

1. The evaluation team members raised a concern that four hours per week of instruction isn't enough time. We concur.

2. Despite the success which this program is having with curriculum writing, more time is needed to create and critique materials, especially for instructors.

3. We were told that although students are not formally tested using standardized tests, students get periodic, informal feedback on their learning progress from dialog journals, oral and written quizzes. Further work may be needed to link these informal assessments with the curriculum so that students are always clear about what they have achieved and where they need to improve.

4. Students are not involved enough in curriculum decision-making or program development.

Boston City Hospital

1. The evaluation team cited the need to get more materials and tasks from work integrated into the classroom.

2. They also cited the need for student follow-up six months after each class has ended to make sure that student/employees are firmly on the next step of the career ladder.

3. The pre-tech science and study skills curriculum, in our opinion, is adequate but might be improved by using more of the strategies and techniques included in community-college level "Learning to Learn" courses. For example, such an approach stresses how to generate good questions from lecture notes, rather than listening and outlining. (See Recommendations section for further information on this approach.)

Hampden Paper

1. The curriculum needs more focus. In an attempt to meet all student needs, it is currently spread too thin.

2. Measuring and recording learner progress needs further development. This problem is, in part, the result of having an unfocused curriculum. For example, one part of the curriculum is very focused: GED preparation. The Jobs For Youth GED curriculum which the program uses is a complete, individually-paced, objectives-based curriculum with a clear method of recording learner progress (for student/worker and teacher). The evolving "skills List" may, over time, become focused in this way, but will require significant more time, and possibly some curriculum development expertise, for this to be achieved

South Cove Manor Nursing Home

1. The Administrator at South Cove Manor expressed a concern that the curriculum should include more job-related reading and writing tasks. We concur that more reading and writing can and should be integrated in classroom activities. The Kennedy Die Castings Program provides one model of how this can be done with beginning level ESL students.

2. One area of growth is assessment on learner progress. This is a particularly difficult task in a theme-based curriculum, but Johan Uvin believes that the outcome study has helped South Cove Manor move ahead in this area.

3. Johan Uvin identified staff development as an area for growth.

VI. Recommendations

Recommendations for Each Program:

Kennedy Die Castings, Inc.

1. We recommend increasing the number of hours per week per class to meet the minimum optimal standard established by the Department of Education for Beginner ESL programs, 6 hours.

2. We recommend that the Worcester Workplace Education Collaborative explore the possibility of offering advanced ESL, ABE, and adult secondary education classes with guaranteed seats for student/workers who are ready for more advanced levels. These might be offered within the consortium at various companies, or might be offered at the College. Perhaps companies would be willing to purchase a minimum number of seats each year, and additional seats on an as needed basis. Although a disadvantage of such a model would undoubtedly be a loss of site-specific curriculum, it would be outweighed by the advantage of allowing students to continue in their studies beyond what the company is able to afford on site.

Boston City Hospital

1. Boston City Hospital has several, separately-funded workplace education classes. Although these are under one hospital department, they are delivered through both outside education providers and hospital employees. There may be an opportunity to bring these together programmatically and to develop a healthcare basic education system within the Boston Department of Health and Hospitals which offers opportunities from the most

basic level up through post-secondary level. If so, we would recommend offering more leveled classes, in particular, breaking up the ABE class.

2. Boston City Hospital could benefit from examining the thinking and study skills instruction courses at community colleges and in some workplace education programs, for inclusion of this approach in the pre-tech science and study skills course. (See Appendix C for references.)

3. The advisory committee and evaluation team at this program need to have more input into curriculum development.

Hampden Paper Company

1. The education program staff and advisory group should agree upon a definition of curriculum, and focus upon two or three well-defined areas for curriculum development in the next year or two. Three possible areas upon which to focus might be:

    a. Job Certificate Preparation Curricula

    As we understand it, Hampden Paper is moving toward a system where workers will be able to demonstrate competency in a job area, and receive a certificate of competency. An employee would be encouraged to acquire as many of these as possible, and there would be financial incentives for doing so. For many employees to succeed in mastering these competencies, they will need basic skills as well as job-specific skills. Indeed, the two will be interwoven, because listening, speaking, reading, writing, computing, analytical and synthetic thinking, problem solving, and teamwork skills will, no doubt, be required to attain many of these competencies.

    There is an excellent opportunity, as the certificate competencies are developed, to do a task analysis on the basic skills required for each certificate, and to develop for each an Entry Standards Assessment (ESA) for each certificate area. The ESA would help an employee know if he already had the basic skills needed for that certificate area, or exactly what basic skills he needed to improve. Then, curriculum materials could be developed which helped student/workers learn the basic skills in the context of work-related problems. Another form of the ESA could be used when the student/worker was ready to demonstrate basic skills competencies and move toward acquiring the rest of the certificate competencies.

The Chemical Mixing Formula Ticket is an example of this job-related basic skills teaching. It could be expanded so that there were instructional materials like this tailor made for every certificate area where student/workers lacked needed basic skills

There is a body of knowledge for accomplishing this kind of curriculum development which Hampden Paper might draw upon, for example, the Dacum process, or the San Mateo County, California ACE program.

b. Computer-assisted instruction

As the company becomes clearer about what tasks workers will need to perform with computers, these should be shared with the workplace education program staff and curriculum could be developed to help workers learn and/or practice these tasks in the learning center. Computer-assisted instruction software could be purchased which helps student/workers to: prepare for GED subjects; acquire basic math skills (there are many reasonable good, objectives-based or skills-based basic math software programs); and learn keyboard skills (there are many excellent software programs for this). Computer-assisted instruction may also be useful in other areas.

We also recommend purchasing additional computers for the learning center, and linking them in a Local Area Network, with shared printers. A laser disc player might also be an investment worth considering, and if there will be significant curriculum development activity, we believe a high quality scanner might prove useful.

c. Fully develop the "Skills List" into an individually-paced basic skills curriculum for Hampden Paper. Starting with the existing list, expand the needs assessment process so that more competency areas are defined (by supervisors, student/workers, union representatives). Then do a task analysis for each of these so there is a clear understanding of what basic skills tasks are required for each area. Relate these to a larger taxonomy of basic skills objectives, and develop performance-based measures and/or test items for each objective. When fully developed, the skills list should be a list of Hampden Paper task areas of interest to workers and supervisors, with specific basic skills objectives and measures for each.

2. Students should be encouraged to attend the learning center for a minimum of 6 hours per week, the minimum optimum standard the Department of Education has established for ABE programs.

3. A private space should be made available as close to the learning center as possible for counseling individual students.

South Cove Manor Nursing Home

1. Although it is not always possible to find a teacher who speaks the native languages of the students, this is an important consideration if new teachers are hired.

2. The administration at South Cove Manor draws a sharp distinction between work-related language skills and life skills, and insists that work-related language skills must be the exclusive emphasis of this program. Although one can draw a distinction, the categories blur, and some "life skills" may be more important to worker productivity that "work-related" language skills. Workers who cannot solve critical daily living problems because they do not have the English language skills or cultural/social knowledge will be affected by their problems, at work as well as in other parts of their lives. For this reason, we recommend that as student/workers identify critical language needs--whether at work or in other parts f their lives--these be addressed in the curriculum and in class.

3. As of this writing, the continuation of funding for this program is uncertain. We recommend that every opportunity be made to find the resources to continue it. It is a model program, with an outstanding approach to curriculum, which in our opinion, should not only be continued, but emulated in many other workplace education programs.

Recommendations for the Initiative:

The Massachusetts Workplace Education Initiative has wisely encouraged each of the programs to develop its own curriculum, tailored to meet its own local needs. However, at this point in the development of the Initiative we believe that the programs could benefit from a more systemic approach. We recommend the following actions and indicate in parentheses who might take responsibility for them:

1. Continue the evaluation team support to current, as well as new programs, to enable programs to define and measure program outcomes and to evaluate programs' diagnostic/placement and student progress assessment systems (Evaluation Team);

2. Provide an opportunity for programs to share, publish, and compare their intended outcomes (State Level Partners);

3. Ask advisory committees and those responsible for curriculum development at each site to review their curriculum and classroom assessment instruments in terms of these intended outcomes, and to refine (add and eliminate) curriculum units and instructional activities to increase enhancement of these agreed-upon goals (Program Sites);

4. Examine intended outcomes across the initiative to determine which of these goals are widely shared, and publish a document listing these. Ask individual programs to list commercial and home-grown curriculum materials which they have found effective in helping student/workers achieve these outcomes; and prepare, publish and distribute a matrix of these materials indexed to their intended outcomes. (State Level Partners);

This will serve three purposes: 1) it will provide a useful self-evaluation activity for each program as it sees for which goals it has or doesn't have adequate instructional materials; 2) it will provide a useful way for programs to share materials across the Initiative; and 3) it will provide a clear picture of where materials need to be developed across the initiative (State Level Partners, through SABES);

5. Using the set of draft curriculum standards which we prepared for this study, or another draft set of curriculum standards, ask representatives from all programs in the Initiative to review, critique, and accept a set of initiative-wide curriculum standards. Use these standards in requests for proposals, and use them for periodic peer evaluation of workplace education programs (State Level Partners and Program Sites);

6. Staff development is important for all workplace education teachers and other staff. Each staff member should have an annual staff development plan which is related to areas of the job in which this person agrees that further knowledge, skills, or practice are needed. (State Level Partners and Program Sites)

7. As workplace education teachers need to share their problems, solutions and expertise, we recommend that regional workplace education teacher-sharing networks be created in at least two other parts of the state, the central and western regions. They could be modelled after the successful existing network in the Boston area sponsored by the ALRI/SABES Greater Boston Regional Center. These networks could use the above matrix as a tool for teachers sharing curriculum materials and for collaboration to develop new materials across programs (State Level Partners, through SABES);

8. Copies of workplace education curricula and curriculum materials developed locally and elsewhere should continue to be collected at the ALRI/Greater Boston SABES Regional Center library and at the State Workplace Education Library, and lists of these materials should continue to be updated and circulated among workplace education programs (SABES);

9. The Orientation for adult basic education staff developed by Quinsigamond Community College for its adult education teachers should be reviewed by SABES as a possible model for orienting new workplace education teachers regionally across the state (SABES);

10. The position of state Workplace Education Coordinator should be restored in order to coordinate these and other state-level responsibilities. (State Level Partners).

11. The workplace education programs should consider the advantages of computer-assisted instruction, and purchase computers. The state staff development and support system should provide training to workplace education teachers in how to use computers for instructional purposes and as tools for word processing, and information storage and retrieval. (State Level Partners, Program Sites, and SABES)

12. As in many adult basic education programs, the systematic teaching of mathematics is weak or non-existent in these programs. Systematic mathematics instruction, possibly using computer-assisted instructional software, should be made a higher priority, particularly in programs where mathematics knowledge and skills are required to perform work tasks. (Program Sites)

13. If the use of computers in workplace education programs in small to medium-sized companies is to become a reality, resources for computers and computer-assisted instruction need to be made available to programs through both public and private sources. In particular, we recommend that the Federal Workplace Education Initiative address this problem in its guidelines an requests for proposals.

VII. Conclusions

From a limited, not necessarily representative sample of programs we must be cautious in drawing conclusions about the curricula found across the Workplace

Initiative as a whole; yet some patterns or trends are apparent to us even in this small sample:

1. Curriculum is holistic, participatory, created or tailored at each site, and addresses needs of student/workers, companies, and organized labor.

   The Massachusetts Workplace Education Initiative definition of curriculum, "the materials developed and used by program staff, the process by which materials are put together, the actual classroom practices, and the philosophy which guides these activities" leaves room for great diversity of curricula at the program sites. At most of the sites we observed, there was a clearly articulated curriculum philosophy, which usually included an emphasis on creating or tailoring curricula (i.e. instructional practices, materials created and adapted) to individual student/workers' needs and goals, which were described in individual learning plans for each student/worker. The site curricula were also company-centered and, where there was a union partner, union-centered; needs and goals of management and organized labor were specifically articulated, conscientiously addressed, and evaluated in the programs.

2. The role of teacher is critical, and requires experience and talent.

   The success of all these programs depends on having teachers who have a wide range of basic skills teaching experience and knowledge (basic reading, writing, math; ESL, secondary level subject areas, computer literacy) as well as a background in counseling, curriculum development, and possibly administration and program evaluation. Such a teacher must also have an understanding of adult education principles, be able to relate well to adult learners, and work effectively in a workplace environment. The workplace education teacher job description which was created from data gathered in this study shows in detail that this is a tall order.

Although most of the teachers we observed met most of these expectations, some to an extraordinary extent, nevertheless, continued staff development must be a high priority for all these programs.

3. Instructional methods and materials are varied, but computer-assisted instruction is lacking.

   None of the four programs rely on a "workbook approach," although several use workbooks as one source of instruction. Teacher modelling of skills, role-plays, tutoring, case studies, drill and practice, learning vocabulary from on-site responsibilities, viewing videotapes, co-operative learning activities, dialog journals, choral work, games, language experience charts, and discussing job-related tools and parts are a few of the many methods used. One area, however, which needs further attention is the use of computers: computer-assisted instruction (including computer-assisted language learning), and the use of computer tools such as word processing. Only one of the four programs even has computers available for student use.

4. Student/workers participate in curriculum decision-making.

   To an unusual degree, student/workers participate in decision-making about these programs, and about the curriculum. In two programs, either as a group or as individuals students have a systematic say in the curriculum they pursue. Even in programs where this is not systematically reinforced, students feel they have a significant voice which is respected by the program partners.

5. The curricula are work-related -- and more.

   Not surprisingly, the focus of the curriculum, in all four programs, is work-related basic skills. Yet, there is a surprising and welcome integration of other skills and knowledge which student/workers need both at work and in the rest of their lives. No doubt this is because of the participatory nature of several of these programs which is encouraged by the state partners.

6. The programs' curricula are meeting the Initiative standards.

   At the time of this study, curriculum development--and the programs themselves--were still relatively new, and none of the programs had what might be described as a mature, fully developed, well-tested curriculum.

Yet, taken as a whole, the four programs were very well aligned with the norms established in the major documents which represented the Workplace Education Initiative standards. (These standards may be found in the document, "Workplace Education Curriculum Standards" prepared for this study and included in the appendix.)

7. An unsolved problem is how to meet the full range of student/workers' basic skills needs with very small programs.

   The most troublesome problem of the design of these programs is that because they are small, and not well articulated with other basic education programs, a student/worker who completes the available instruction offered at the workplace and who wishes to go on to the next level, may not be able to do so. Two programs attempt to address this by providing a whole continuum of services from basic literacy and ESL up through secondary level, delivered by one teacher -- a one-room schoolhouse approach. Two programs attempt to address this by referrals out, but because nearly all of the programs in the adult basic education system have long waiting lists, this is not always effective.

8. The curricula have an impact on workplace culture.

   There is some evidence that the curricula of these programs have an impact on workplace culture, that they are an important part of an organization-wide effort to move toward "high performance organizational models" which require worker participation in quality control decisions, and which require higher basic skills.

9. Site curriculum products and processes could be refined and disseminated.

   There are some very creative curriculum materials development efforts under way. If encouraged and supported, they could result in well-developed processes and products for dissemination. Most notable are those at Kennedy Die Castings, Inc. and at the South Cove Manor Nursing Home.

Termination Study

Introduction

The termination study was not part of the original plan for the MWEI Cycle 4 evaluation. It was born midway through the evaluation year when one company -- Friction Materials, Inc. (FMI) -- ceased operation and another, Spir-it, Inc. (Spir-it) became unable to sustain its education program. Both of these companies had been offering education services to their workers for over two years and had participated in former evaluations. Their established membership in the MWEI, the amount of information already collected on them and their unanticipated terminations made these programs worthy of continued study. The state steering committee and the evaluators agreed that there was much to be learned from answers to why these these programs ended.

The termination study forms the third section of this report. It:

(1) describes and analyses how the goals of the FMI ESL program were linked to company growth and profitability and examines why the program-- and the company-- could not fulfill its goals.

(2) examines why Spir-it, Inc. was no longer able to sustain its education program, and addresses in particular what role basic skills education played in the company's long-term strategy for bringing about needed organizational change.

Methodology

The evaluator conducted a series of interviews with program staff and company representatives at each site. In each interview, the evaluator followed a protocol which was designed to help respondents:

(1) reflect on the original goals of their program;

(2) consider the extent to which those goals had been met;

(3) think critically about why those goals were met or not;

(4) think creatively about how their program could have been structured to avoid the problems it encountered.

In addition, respondents were asked to answer a series of questions about program outcomes. These questions are similar to those used by the Hampden Paper and Aerovox evaluation teams in their outcome studies. These questions use the American Society for Training and Development "essential skills categories" as a framework for assessing the impact of the workplace education programs at FMI and Spir-it. (See Appendix D, under separate cover, for copies of the protocols used.)

Interviews lasted from a half hour to three hours, depending on how involved the respondent was in the program and how much time s/he had available. At FMI respondents included the program coordinator, the business agent for Local 2542 of the Amalgamated Clothing and Textile Workers Union (ACTWU), a student in the program, a supervisor, the statistical process control specialist, the director of personnel, and the plant manager.

At Spir-it, respondents included the program coordinator, a student in the program, a supervisor, and the director of personnel. The evaluator had already conducted the first meeting with the Spir-it evaluation team as part of the Spir-it outcome study. After it became clear that Spir-it would not be serving as an outcome study site, the evaluator used the information collected in that meeting to inform the termination study. In addition, the evaluator attended two meetings with the MWEI Coordinator and Employment Connections, Inc. (ECI) administrative staff. ECI is the learning provider agency for the Spir-it program. One of these two meeting was also attended by Spir-it's director of personnel.

Friction Materials, Inc., Lawrence

Background

FMI is a small (100 to 300 employees), fifty-year-old company formerly known as the P.T. Brake Lining Company, a trademark name in brake technology. The company was founded and run by a man who knew every part of every machine and every worker by name. When his sons inherited the business, they faced two problems: they did not have the skills to run the company in the same hands-on way their father had, and the brake technology industry was changing. Asbestos had been a main component of brake technologies since the start of the automotive industry and federal regulations were beginning to restrict the use of this toxic substance. Five years ago, the company was on the brink of bankruptcy, in part due to heavy investments in new, non-asbestos-based materials, and losing customers from a bad reputation for poor quality control. As a remedy, the once-successful P.T. Brake Lining Company negotiated a transfer of assets to Ecklin, Inc. Ecklin owns four-to-five dozen companies like FMI throughout the U.S. and Canada, many of which manufacture automotive parts. Ecklin was founded in the 1920s and has grown over the years to a $1.5 billion a year operation with 12,000 employees. Ecklin, Inc. changed the name of the old company to Friction Materials, Inc. There are five companies in the Ecklin group which manufacture brake products and FMI is one of them.

Workers who were still employed by the company prior to the transfer became concerned about how the transfer might affect them. They voted in a new union (ACTWU Local 2542) by a narrow margin (53 to 46) in February of 1987 . Some observers hold the opinion that Ecklin frowns on having its companies unionized. These observers suggest that FMI's unionization might have caused the parent company to judge FMI harshly when it failed to show a profit quarter after quarter. But, in the beginning, the newly-unionized FMI stepped up production with the backing of the parent company, with the hope of reclaiming some of its former market share. By February 1989, when the FMI on-site ESL program was begun, FMI had grown from 100 to 260 employees.

The Program

The ESL program, which was developed in partnership with the Lawrence Adult Learning Center, hoped to address some of the problems the company still faced despite its growth: (1) poor retention of workers; (2) poor communication between English-speaking supervisors and Spanish-speaking workers (95% of the FMI workforce speaks Spanish as a first language); (3) lack of ability of many workers to participate in a company-wide program to introduce statistical process control-- a program which was essential to wooing back lost customers and opening up new markets; and (4) financial loss from excessive waste (scrap) in the production process, also to be addressed by the new SPC system.

Classes met twice a week for two hours-- a total of four hours a week. For a short time, release time was granted to workers who attended classes. But soon workers were asked to attend class after the main shift , with pay for two of the hours they spent in class. With the help of a supervisor who saw the ESL program as a critical component of the company's effort to boost production as well as morale, the teacher/coordinator developed a curriculum that was work-specific. The results of worker participation in the ESL program were quick and dramatic. They included:

- Workers improved their mastery of important job-specific vocabulary and, therefore, of certain job procedures.
- After two weeks of instruction, the company saw a 40% reduction in scrap. (The scrap rate had previously been about 60%; in October 1989 it was 16%. Before the ESL class, the company was throwing away more in scrap than it was using in products.)
- Production improvements of about 20% on one line manifested in the first week, thereby increasing salary for workers.
- The personnel office documented improvement in the company's safety record.
- Retention of workers increased.

In late winter/early spring 1989, with enrollment around 60 (ten above the 50 workers which the grant targeted), it seemed that the FMI program was one of the best examples of a successful workplace education program in the federally-funded MWEI cohort. Then the lay-offs hit. By late summer, over 100 workers had been laid off. Classes were reduced by over two-thirds, leaving only 14 workers enrolled. Workers with no seniority were the first to go, and they were the majority of those enrolled.

The reason given for the lay-offs was lack of orders caused by a small recession. Ordinarily, distributors and large transit companies keep their shelves well stocked with brake linings. In a recession, their business slows down; they don't buy as much; they take the risk that they can buy quickly as the need arises. (When a truck company is working full-tilt, it needs to have brake linings on hand. When business slows and trucks are idle, orders dwindle.) The lay-offs were probably not as much a surprise to management as they were to some workers. The P.T. Brake Company had lost many customers because of its "ship anything" attitude in its later years and the new FMI had not wooed these customers back quickly enough. Instituting SPC and establishing a workplace ESL program were part of an overall strategy to revive the company, but there wasn't enough time, it seems, to go far enough with the plan before recession and lay-offs hit.

Problems

With hindsight it seems that the company never really recovered from the blow which the 1989 recession and first round of lay-offs dealt. From the summer of 1989 until the spring of 1991, the company suffered several waves of call-backs and lay-offs. While it isn't atypical in this industry to experience cycles of fast and slow sales (slow sales occurring especially in the fall), the combination of the natural sales cycle, a real recession, and lagging orders due to a weakened company reputation hit FMI very hard. During this time, much effort went into keeping the ESL program alive. Clear communication between workers and supervisors was as important as ever. This was especially true since (1) Ecklin began production of a new, more-complicated brake at FMI-- the"integrally molded" (IM) line-- which required workers to take instructions from supervisors; and (2) a company-wide SPC program was being instituted that demanded fairly sophisticated English language skills. The ESL program was still seen as intimately linked to company goals of improved communication in English and establishing quality awareness-- and seen, by some, as essential to achieving those goals.

With the first round of lay-offs, the workplace education partnership had to re-think how to reach workers with ESL needs who were not enrolled in the regular classes and who apparently would not enroll-- the "hard core" employees who had been with the company for a while. The partnership decided to add a ten-minute ESL/quality-control component to the six half-hour SPC training units which many employees were required to take, while continuing regular ESL on a smaller scale.

The ESL add-on strategy -- or "esoteric English" as it was called-- did not work. It provided too little instruction to too small a group of workers. While regular

ESL classes continued on a greatly diminished scale, the partnership decided to prepare a quality awareness curriculum that would be offered to all workers for a total of six hours during regular shift time. The curriculum would introduce basic concepts of quality control in a language-sensitive way, thereby promoting quality awareness and ESL simultaneously. Winning release time for the quality awareness program was a big step for the ESL staff. Although the company paid for two of the four hours workers spent in the ESL program, it was adamant about not being able to give release time during regular shift hours. Managers argued that they needed workers on shift to meet production quotas-- especially now that they were relying on a much smaller number of workers. Workers said they could not attend class after work because they worked other jobs, had family responsibilities, and had transportation problems. Providing quality awareness instruction during shift hours demonstrated company commitment to education, and, in particular, to education about quality.

The need for ESL instruction, and its relationship to producing quality products, was heightened at this time by increasing pressure to perfect the "IM" line. What constituted quality in this line differed considerably from quality in other lines. (In other lines, quality is a function of shape and drill patterns. In the IM line, quality is a function of color, left and right, and front and rear.) Workers could not depend on their knowledge of other products to guide the manufacture of the "IM" line, nor could they depend on their understanding of what quality in a line means. Supervisors had to spend more time repeating instructions in English, and frustration levels rose. One manager suggested, with hindsight, that the company should have trained a few people who were bilingual in "IM" production at the other Ecklin plant where the line is made, and then had them teach everyone at FMI in Spanish, rather than hobble along trying to communicate complex information in English. But everyone felt such intense pressure to produce that they missed the proverbial forest for the trees.

Ecklin announced that it would shut down operations at FMI a week before the teacher was to pilot the quality awareness program. Ecklin cited fiscal reasons for closing the plant. Ecklin owns five other plants which produce the same items as FMI. These plants are utilized at 75%-80% capacity. After four years of watching FMI struggle to turn a profit, paying rent in a building they do not own, and paying one of the highest electricity rates in the country, Ecklin decided it was best to shut down FMI and increase production in the other plants.

This report is interested in the relationship between the ESL program and the shut-down of the plant. At the time of the Ecklin buy-out, there was great hope that FMI would make the organizational changes needed to become a real competitor in brake technologies. Managers, supervisors, workers, union leaders, and, later, education staff agreed that changes needed to be made. And they agreed on what some of the changes should be-- improved communication in English, improved quality awareness, and instituting SPC. The ESL program was one way to bring about those changes. Did the ESL program live up to its promise, and was it, then, not enough to help save the company? Or was the program never fully realized as part of a genuine strategy for change? If it was never fully realized, why wasn't it-- given the apparent agreement on goals among the key players?

The information collected during the termination study attempts to answer these questions.

Conclusions

Despite the agreement on goals among the key players, and the remarkable outcomes which the program reported in its first three months, the program did not live up to its promise. While the program was supported by some managers and supervisors who were very aware of how important the program was both in the short and long term, there was not enough support from upper management to develop it fully or to carry it through hard times.

- Production *against* education, not production *through* education. Under pressure to meet quotas with a diminished workforce, management seemed to pit immediate production goals against a long-term commitment to education and organizational change. This was evident at the most obvious level in the no-release-time policy and the minimum hours of instruction offered per week. The plant manager himself said: "The atmosphere in Massachusetts is too competitive to give time." All the respondents, including the plant manager, said that lack of release time was a major barrier to program success. The apparent bind between meeting short-term production goals and making a long-term investment in the workforce is not unique to FMI. Increasing numbers of reports on education and the economy discuss at length the need for American management to shift its focus to the long-term. But this is more complicated in an industry where there is no history (and no need until now) of understanding the relationship between education and improvement.

In companies that manufacture electronic or communications products, for example, the need to keep up with new ways of producing and organizing work is more obvious. The technology itself changes rapidly, so the product drives change. The new "IM" line challenged the company's ability to cope with new-product manufacture, but there was no infrastructure to help the company cope. Furthermore, the parent company, Ecklin, did not move in to support education as a strategy when local management didn't. Ecklin's reputation, as reported, suggests that it does not understand-- and is, therefore, not committed to-- education as a strategy for business improvement.

• Questionable commitment to quality. Management's commitment to instituting a complete quality control program was questionable. The general perception of the respondents was that not all managers really bought into the quality program, especially important upper-level managers. There was even a question abut the extent to which the quality program was intended to be an appeasement for one large customer as opposed to a method which genuinely guided production and standards for all customers. "Quality comes top down, not bottom up " is an axiom of the quality movement. Without support from the top, quality could not be integrated into all the levels and sub-levels of the production process.

Some respondents reported that workers who valued quality -- and slowed their pace to produce it -- were told by supervisors that FMI wanted "numbers." This happened despite company documentation of the loss of thousands of dollars of spoiled goods each day. Ecklin kept many of the former P.T. Brake Lining managers and staff when it took over. These personnel continued to support the old ways of doing things -- the ways they knew and were comfortable with -- despite the new demand for quality. Without the full support of the upper-level managers, the staff hired to implement the quality program could go only so far.

Furthermore, the incentive system at FMI stressed piece work over quality by paying workers a bonus for pieces finished over a certain quota. In this system, the message is that, if you produce in quantity, maybe you'll get enough good pieces. There is an inherent contradiction in a production system which espouses quality production on the one hand and gives incentives for numbers of poorly finished pieces on the other.

If establishing quality throughout all levels of the plant really was a main objective of management, teaching English was a limited strategy to pursue. Because the plant was almost entirely Spanish-speaking, management had the opportunity to provide SPC instruction in Spanish, coupled with an ESL program designed to match it. This would have reached more workers in less time and better demonstrated management's commitment to quality. Workers could not take an ESL program that was linked to quality seriously, if the quality program itself was not taken seriously.

- Workers not invested in change. Under these circumstances, the workers themselves were not motivated to attend the ESL class. This was in part due to the muddled signals being sent by the company about education and quality control. Workers also saw little personal benefit in participating in the class. Lawrence is a predominantly Spanish speaking city and many workers do not perceive a need to speak English in order to live well. With unemployment in Lawrence now at 17%, and the need to find work in an English- speaking community perhaps more deeply felt, some workers may now regret missing the opportunity to learn English. But, in the FMI context, if the company commitment to quality was questionable, then workers would not be motivated to spend four extra hours in the plant learning English, even if they were getting paid for two of them.

The situation is complicated in a company where workers are mostly immigrants and speak Spanish, and where managers are Anglos. Deeply imbedded attitudes about ethnicity, class, and roles in the workplace may bias management's perceptions of what workers can do. Managers believe they give workers a great opportunity to learn, do not see the limitations built into the opportunity, and then blame the workers for not being interested or motivated enough to take advantage of it. The ESL program opened the door to involving workers in decisions about how to save material, promote safety, and keep the workplace clean. It got workers excited about honing their skills and doing quality work. But at FMI the door was not opened very far.

The following example captures some workers' feeling that they were not respected as full partners in the FMI make-over: A worker was upset that he had to follow instructions from a supervisor who consistently made mistakes himself and instructed others poorly. The worker brought "to the table" an idea about how to save materials, but "the company didn't listen." Workers perceived those few managers who were on their side as blocked by others with "more power but less insight."

Union leaders and union members looked on in dismay. But, for the most part, the union/management relationship was good. It is unlikely that the presence of a union tipped Ecklin's decision to close down the plant.

Could a more comprehensive ESL program, integrated with a quality training program, have saved FMI? This evaluation can only raise the question in an effort to stimulate thought and action in other companies, education providers, and state agencies responsible for making workplace education programs successful. The evidence and analysis presented here are intended to guide discussion about workplace education in ways that link it to broad company, union, and worker goals.

Spir-it, Inc., Wakefield

Background

Spir-it , Inc. is a 35-year-old company which produces plastic stir-sticks, straws, picks, spears, and food markers. It is the sole manufacturer of plastic coffee stirrers for MacDonald's world-wide, and the production of this one item accounts for 20% of Spir-it's entire operation. With annual sales of $8.5 million in the mid-eighties, Spir-it cornered 60-65% of the market share, selling to clients like Eastern, Pan Am and KLM Royal Dutch Airlines, Hilton Hotels, and casinos in Las Vegas. Purchased from the original owner in 1988 by an investment group (with economy stabilizing restrictions, such as the firm having to remain in Wakefield), the company hoped to grow over the next two years to annual sales of $15 million.

Management's plan to almost double sales in a two-year period, coupled with the need to automate production to meet changing customer demands, underscored the need for on-site instruction for workers whose basic skills and English-language proficiency were limited. For example, MacDonald's would soon require all coffee stirrers to be individually bagged in cellophane. (Until recently, only stirrers used outside the United States were individually bagged; those used domestically were not.) The machines at Spir-it which bagged the stirrers for years could not keep up with the additional numbers of stirrers which needed to be bagged. Engineers designed new computerized "bagging" machines which required operators to use basic math to run them and to perform quality control functions on them.

Supervisors noted that there was a big problem because workers could not understand directions given to them in English. This problem affected all levels of productivity-- from the amount of scrap produced to the amount of down time on a machine which could actually be repaired with a little information and know-how. Feelings of inadequacy and lack of confidence also affected relationships among workers and their approach to work. There was general agreement, therefore, among supervisors and upper-level managers about the benefit of providing instruction which would help workers to:

(1) learn enough English to understand and read directions;
(2) understand their machines well enough to stop production when the machines break down; and
(3) develop the confidence to call a supervisor to ask for help with solving problems, and to fix the problems themselves when possible. (For example, a product was run for three days in the wrong color before someone noticed and did something about the problem.)

The Program

In the spring of 1989, Employment Connections, Inc. (ECI), located in Chelsea, began an ESL program at Spir-it for a group of about eight workers. Enrollees were mostly Hispanic; a few were Cambodian or Vietnamese. The employee population was (and is) somewhat transient, and management was aware that the need for ESL could increase significantly in a short time. (In 1987, 50% of the workers were Cambodian.)

The personnel director estimated that approximately twenty out of 125 employees could benefit from ESL instruction. With 8 enrolled, more than half of the workers in need of instruction were not asking for it. The company had learned that forcing participation was not successful, and left it up to individual workers to enroll or not. There was no paid release time and workers attended class on their own time after the main shift. Coordinating transportation and daycare were two significant barriers to participation. Program staff did not survey employees to see how many were kept from attending class due to transportation or daycare issues, but the observation was that "(daycare and transportation problems) affect every female in the class." Classes were 80% female.

The classes joined students together at the beginning, intermediate, and advanced ESL levels, but numbers were small enough to make the class manageable. Some preparation was made to provide math instruction but the coordinator/teacher left the program abruptly. It then took some time to find a replacement and get the program up and running again.

After its first year, the program seemed successful. The following are some outcomes which document that success:

- While putting together materials for hourly employee performance reviews, the director of personnel noted changes in the productivity levels of seven of the employees enrolled in the ESL class: productivity levels for these employees increased from 2% to 10%. The director of personnel was not comfortable attributing the increase solely to improved proficiency in English (she suggested that increased attention may also be a factor).

Nonetheless, positive results were noted according to a very specific company measure.

- Supervisors observed the following results from ESL instruction:
  - -- Workers could identify what's wrong with a machine and get a mechanic to fix it without a translator;
  - -- Total scrap decreased from as much as 15-16 pounds per day to 5-6 pounds per day;
  - -- Workers increased in self confidence and satisfaction with being at work;
  - -- Workers showed greater independence in job performance and increased cooperation with co-workers; and
  - -- Workers showed increased appreciation for the role of education.in the workplace.

Problems

The first two 12-week cycles of the second year of classes had reasonable enrollments -- 8 and 14 students respectively. When the third cycle began in January of 1991 with only 3 students, program staff and company management saw it was time to reevaluate the purpose and format of the ESL program. Transportation and family concerns made it difficult once again for even the most regular students to come to class after work. The company had also suffered some dramatic changes which would influence its re-evaluation.

The recession hit Spir-it the way that it hit other small manufacturing companies in Massachusetts and the nation. When Eastern Airlines collapsed, Spir-it lost one big client. When Pan American slowed it services, Spir-it lost again. Other potential clients refused to do business with Spir-it because they did not have a quality control program in place. As a result, Spir-it either failed to show a profit for all four quarters in the second program year, or showed only a very small one. The ten managers and operators operating Spir-it for the Board of Directors decided to finally make the changes they had been talking about for some time: (1) consolidate production functions into fewer departments; (2) automate the bagging of MacDonald's stirrers; and (3) institute statistical process control.

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The January 1990 meeting of the Spir-it Workplace Education Advisory Board tried to answer this question: How can the educational services which ECI offers be of most help to the company in a time of transition? The answer was twofold: (1) continue ESL and offer ABE instruction (especially math) in an open classroom for one hour, four days a week, with one-half hour per day of potential release time, to be approved by supervisors depending on production schedules; and (2) design and offer a pre-SPC course on company time for all employees which would raise consciousness about quality and prepare the way for SPC. "All employees" included supervisors, floor workers, set-up people, and operators.

It seemed that the combined open-classroom and pre-SPC curriculum was an answer to Spir-it's problems on several levels. An open classroom would invite workers to learn English and math with at least partial release time. More and more math would be needed to perform quality control functions, and the open classroom was one arena in which workers could learn to do more math. A pre-SPC course offered during shift time would educate the workforce about the range of changes the company planned to undergo and help workers to invest in those changes. It appeared that the company was developing an overall educational strategy that would help to move it quickly into a high production, quality-oriented organization.

Using an SPC training manual, the coordinator developed the pre-SPC curriculum but, shortly before it was to be piloted, the proposed program foundered on the issue of release time for line workers. Management decided it could not offer any program to workers during shift time as planned because of increasing pressure to meet production quotas. Management was adamant about not "stopping production"-- which, it claimed, would happen if even one person were taken off the line. In addition, almost no supervisors were allowing workers to come to class on release time because production demands were high. As a result, only one or two workers came to class for a total of an hour or a little more a week -- hardly a basic skills program.

Management's solution to the problem of not "stopping production" to accommodate line workers in the pre-SPC program was to offer the pre-SPC program to supervisors and managers who, as salaried workers, could be asked to put the extra time into training without pay. These people would then, in turn, teach the set up people, line workers and operators during their shifts. This solution did not meet with the standards set by the state funder for proper use of workplace education funds for basic skills education. In addition, the state coordinator became concerned that supervisors and other managers were reneging on the commitment made by the Advisory Board to provide some release time for workers, and that an open classroom model for two workers was neither fiscally nor educationally sound.

The MWEI state coordinator explored several strategies with Spir-it management which might encourage hourly workers to participate in the program without release time. His intention was to try to save a program which the state had nurtured for two and half years. Aware that transportation and family issues might still make it impossible for some workers to stay after their shift, in one meeting the state coordinator finally suggested that management offer a quid pro quo to workers: join the pre-SPC program or open classroom now on your own time, and consider it an investment in your job. That is, workers would in effect be investing in a company which is trying to improve profits in which workers will share through the possibility of promotion. When management made it clear to the state coordinator that no such enticement could be made because the people who needed ESL and pre-SPC instruction most might not have jobs in two months, it became clear that the program could not continue. The target group defined by federal guidelines would probably no longer be employed.

Conclusions

- Production *against*, education, not production *through* education

  As with FMI, although it appeared that Spir-it was developing a company-wide educational strategy to increase production in the long run, the company succumbed to the production vs.education paradigm. The evaluator is not an expert in plastics manufacturing and cannot make a technical judgment about how easy or difficult it is to take one or more operators off the line for an hour. It might in fact be the case that, in a small plastics manufacturing company, taking a few people off the line would severely hinder production. However, it is difficult to imagine a production process that could not accommodate the regular short-term absence of a few workers if the absences were planned properly in advance -- and if the absence in the short term were measured against the long-term gains that a better-trained worker would contribute.

Faced with a similar dilemma in another company, a supervisor who is very supportive of workplace education said: "The conflict between production and going to class is not as bad as people think. Just make a department 'leaner" for an hour. It's a question of organization. I've never worked in a place where you couldn't pull a person or two or three off the line for an hour. You just have to think ahead. Show me one plant where there isn't some absenteeism. People work around it." This quotation illustrates the framework that would make release time possible. This requires that the supervisors be "won over" to the side of providing education on site and on company time. At Spir-it, this never happened most likely because the upper-level managers were not convinced that education was a priority. If they had been convinced, they would presumably have communicated this effectively to the supervisors.

Unfortunately, the management at Spir-it seems to have felt so desperate in the face of continually falling profits that they could not embrace a perspective that may have helped them improve production in the long run. The pre-SPC curriculum was completed without state support and offered to supervisors who, presumably, will teach what they have learned, in the best way they can, to the workers in their charge.

Recommendations of the Termination Study:

These cases provide evidence of the need for the state to systematically prepare and disseminate information to employers about education as a long-term strategy for change. Case studies, examples from real companies, hypothetical circumstances, and results of reports can be presented by resource people, or, more usefully, by employers and union people to audiences of their own kind. This puts the burden on the state to identify and organize those employers and union representatives best suited for the job. Facilitated workshops, conferences, meetings and support groups for employers and unions are needed.

- The MWEI should encourage employers and unions to think about education as a long-term strategy for improving workers' skills and reorganizing the workplace. This encouragement may take the form of a workshop, seminar, or panel presentation designed for the business community and organized labor.

- The MWEI should solicit the public support of business and union leaders who are invested in education as a long-term strategy for change in the workplace, and involve them in workshops and other presentations on the topic.

- The MWEI should consider more deeply than it has already how ethnicity and class influence program success. It should include these issues in discussions and workshops about workplace education.

- The MWEI should consider first-language instruction in those settings where it is an appropriate strategy.

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APPENDICES

Data Gathering Instruments and Related Documents

Report of the 1991 Evaluation of the Massachusetts Workplace Education Initiative

Appendix A: Outcome Study Case Studies

Appendix B: "Evaluating the Evaluation" Questionnaire

Appendix C: Curriculum Study Questionnaires and Related Documents

Appendix D: Termination Study Questionnaires

Appendix A: Outcome Study Case Studies

Aerovox, Inc.

CASE STUDY:
OUTCOME STUDY AT AEROVOX, INC.

Background: Aerovox, Inc., New Bedford

Aerovox manufactures capacitors-- conduits for electrical charges. Aerovox is a medium-sized company (about 700 employees) in a mature industry faced with the challenge to automate, down-size, develop a quality control program, and to re-skill its workforce. These needs must be addressed if the company hopes to compete with the less-expensive, equally-sophisticated products being produced abroad. Aerovox is the major manufacturer of capacitors in the U.S. since its main competitor, General Electric, moved its plant to Mexico.

Recently, the company purchased a film plant from AT&T to produce DC (direct current) capacitors. Accustomed to manufacturing AC (alternating current) capacitors on machinery that is not computerized, the company had to adjust to producing their new products on highly-sensitive, computerized machines with new materials. In addition to this change, the company is using more metalized polypropalene than before in all its manufacturing processes. Metalized polypropalene is a metal-backed paper that eliminates the need to fuse metal and paper together in the capacitor manufacturing process. This material is central to the future of competitive capacitor manufacturing. The metalized polypropalene product line will be highly automated. For example, one machine can replace a whole line of operators.

The loyal workforce at Aerovox is mostly Portuguese-speaking people who know their old jobs on the old machinery very well. Within the framework of the old production methods, reading and speaking English were not essential skills. The demands of performing new jobs on new machines now highlights the need to provide English language instruction as a precursor to training on the new machines. Even native-English-speakers are challenged to develop skills that they did not need or use in the old production method. As the company embraces more-sophisticated production technology, workers' inability to communicate and read well in English (especially to read manufacturing process instructions) or perform math functions required for statistical process control (SPC) becomes more problematic.

The three components of the Aerovox workplace education program-- ESL, ABE/GED, and math for SPC-- all directly address the need for improving workers basic skills to prepare them for new forms of work. The GED component does this less directly than the others but the link exists. Workers attend class 50 percent on company time and 50 percent on their own time.

When management looks to where it wants the company to be six years from now, education becomes a big piece of the overall strategy. As the company continues to down-size, automate, and develop quality control, it will put increased demand on workers to problem solve, to cross train in at least two jobs, to work together as teams on one machine, and to become more responsible for catching problems with scrap and faults in the production process. The program does not seem to operate yet within a company-wide framework of promoting education at all levels in the service of continuous improvement. The current program is one step in the development of that strategy.

Description of the evaluation process:

The make-up of the evaluation team: The Aerovox evaluation team was composed of the vice president for human resources, the personnel manager of the Electrical Products Group, the production manager of the Electrical Products Group, the department head of 54 workers who were participants in the Aerovox workplace education program, two students, and the teacher/coordinator. The teacher/coordinator was employed by the Labor Education Center at the University of Massachusetts in Dartmouth.

The process: The Aerovox team followed the ten-step process described in Section II of the report of the MWEI Cycle 4 Evaluation. All members of the team participated actively on the team, offering suggestions consonant with their interests and roles in the company. Most of the day-to-day work of designing and using the data-gathering instruments, and analyzing and presenting the data was left in the hands of the program coordinator.

What was learned about the education program: See Section II, Step 8 of the report of the MWEI Cycle 4 Evaluation for a summary of the Aerovox team's findings, and the attached report by the program coordinator.

What was learned about the evaluation process: The Aerovox team was a diverse group of people who were unsure of what they could create together when they convened for the first time. Because they had never experienced an outside evaluation before, they were also unsure about what real help the evaluator might give -- and how much of the evaluation would be just a time-consuming exercise. Over the course of four team meetings, a sense of common purpose developed. This was due, in large part, to the efforts of the program coordinator who kept in touch with team members between evaluation team meetings, and who was very invested in having the evaluation succeed both in product and process. As the preliminary data showed some real gains made, the team developed more interest in what the final data might tell. The vice president for human resources was especially interested in student self-report data on increased safety, as this was consonant with his figures on reduced number of worker's compensation claims.

When the team members reported their preliminary findings to the vice president for quality control, they found a surprisingly sympathetic ear. Recently returned from a visit to another company which had embraced the "high productivity" model (team-based work, building-to-order, total commitment to quality, and worker involvement in the work process, etc), he was especially interested in workers' reports that participation in the Aerovox education program helped them to work better in teams. He suggested that future education programs might focus more on skills like team- building and on changing the organization of the company in general, as well as on more-traditional basic skills. The evaluation team meeting provided the venue for the vice president for quality control to discuss this new idea with other key people in the company and to begin to plan how these new ideas might be carried out.

Attached data-gathering instruments, summaries of findings, and related documents:

Data-gathering instruments:

- -- Job-Specific Questionnaire: same for all students
- -- "ASTD" Categories Questionnaire: same for all students
- -- Competencies Checklists: tailored for
  - SPC Math
  - GED
  - ESP (English for Special Purpose)
  - ASE/Pre ASE
  - ABE 2
- -- Questionnaire for Department Heads

Summary of findings:

- -- Outcome Study Final Report

EVALUATION REPORT-- WORKPLACE LITERACY PROJECT
SOUTH EASTERN MASSACHUSETTS UNIVERSITY (NOW KNOWN AS UNIVERSTIY OF MASSACHUSETTS, DARTMOUTH)
LABOR EDUCATION CENTER AND AEROVOX, INC.
IN EFFECT FROM APRIL 1990 TO SEPTEMBER. 1991

INTRODUCTION:

a. BACKGROUND:

Initially Aerovox was reluctant to release workers or management to make up an evaluation team or to take part in meetings outside the plant. The company considered that its satisfaction with the program was proof of its success and was doubtful that any further assessment would be of any benefit.

However it acceded to the DOE request, and in the last months of 1990, an evaluation team was formed at Aerovox.
As well as the coordinator of the Workplace Literacy Program, it included the Vice President of Human Resources, the Personnel Manager of the Electrical Products Group, the Production Manager of the Electrical Products Group, the Department Head of 54 workers involved in the Workplace Literacy Program and a winder and a riveter who were students (one in ESP and one in Adult Ed 2--(the Pre-ASE and ASE class) in the program. At the Mass. Education Workplace Literacy Initiative conference of representative teams from companies taking part in the evaluation, held in Boston in January, 1991, the Aerovox team was represented by the VP of Human Resources and the coordinator of the Workplace Literacy Program
Following the meeting, the team had a series of meetings--often held between the WP Lit. coordinator and individual team members, sometimes held as a group, and, on occasion, held as a group with Laura Sperazi. The coordinator and the VP also had correspondence and discussion with Laura. We studied the original ASTD questionaire built up by Laura, revised it to suit our needs and built up an Aerovox work related skills questionaire for workers and supervisors. As we worked together, our goals became more apparent, our enthusiasm grew and our belief in the efficacy of our evaluation strengthened. In October 1991, we held a meeting to report to representatives of management. We limited our report to findings on Work Related Skills in which Department head responses were cross tabulated with worker/student responses. One of the responses from the findings

6.*Workers are developing sense of team work and team identity

	stayed the same	*improved*	*improved a lot*
w/s	**18.2 %**	**65.5 %**	**16.4 %**
DH/s	**44.5 %**	**55.5 %**	**%**

triggered a response from the Vice President of Quality Control which delighted the Evaluation team. " This," he said, stabbing the response with his finger, "This is the response I am most interested in. I have recently visited a plant in which worker involvement and problem solving were firmly established. The workers are the ones with the greatest understanding of the problems and the workers are the ones who can find the best solutions. We have relied too much on management and it is time for us to turn to the people on the floor."

b. THE EVALUATION QUESTIONAIRES

Worker /students drawn from five different classes completed three questionaires.

1. Work related Skills

2. ASTD --drawn from:
i. Foundation (knowing how to learn)
ii. Adaptability(creative thinking and problem solving
iii. Personal Management (self esteem, goal setting, motivation and personal and career advancement)
iv. Group Efectiveness (interpersonal skills, negotiation and teamwork)
v. Group Effectiveness (organization skills and leadership)

3. Competence (reading writing and computation) was initially part of the ASTD list, but it was withdrawn from this and a series of third questionaires were drawn up by teachers and coordinator. Responses were elicited from five different classes

1.English for Special Purposes (ESL classes with emphasis on job related language).
Responses came from 20 students who were divided into two groups --
(a) ESP 1(Beginners) & (Pre-Intermediate) ----2 cycles completed--the first of 48 hours, the second of 24 and
(b) ESP 2 (Beginners)--with one competed cycle of 26 hours.

2.Adult Education 1 (more properly Adult Basic Ed.)
Responses from 12 students who had completed one 12 week cycle of 48 hours or two 12 week cycles of 48 hours or three 12 week cycles of 48 hours

3. Adult Education 2 (more properly Pre- Adult Secondary Education and Adult Secondary Education) Responses from 5 students who had completed one 12 week cycle of 48 hours or two twelve week cycles of 48 hours or three 12 week cycles of 48 hours, (and who, at some stage, might have moved from Ad. Ed 1 to Ad. Ed 2)

4. GED . Responses from 9 students who had completed a cycle of 8 weeks and 32 hours (GED Express) or Pre-GED (12 weeks and 48 hours) or Pre-GED (12 weeks and 48 hours) plus GED (12 weeks and 48 hours)

5. Pre-SPC (Statistical Process Control) Math workshops. Responses from 9 students from the first group who completed the 6 week and twelve hour workshop.

Supervisors were asked to complete a Work Related Skills assessment and to comment on their attitudes to the literacy program. The Work Related Skills assessments were cross tabulated with worker/student assessments.

Worker /Student and Department Head/supervisor responses were entered on SPSS at UMass, Dartmouth and cross tabulated by department and classes.
ASTD responses were entered.
Competency responses were entered and cross tabulated with departments.
Other more personal information has been entered --we intend to mmake more cross tabulations.

The self evaluation report was passed out to 83 students, 56 completed and returned it and 55 were used in the evaluation. Ten were discarded because of faulty /inadequate responses.

9 department heads or supervisors completed the Work Related Skills report.

FINDINGS:

A. WORK RELATED SKILLS

These questions were answered by both **(a) worker/students**
&
(b) department head/supervisors

Responses are reported below as: **Worker student response = w/s**
Department Head /supervisor = D H/s

1.*Workers are not afraid to ask questions about things they don't understand

	stayed the same	*improved*	*improved a lot*
w/s	9 %	59 %	32 %
DH/s	33% %	55 %	11 %

2.*Workers understand directions

	stayed the same	*improved*	*improved a lot*
w/s	17 %	66 %	17 %
DH/s	34.4 %	55.6 %	11.2 %

3.*Workers figure out ways do things themselves

	stayed the same	*improved*	*improved a lot*
w/s	20 %	63 %	17 %
DH/s	77.8 %	22.2 %	%

4.*Workers discover and apply new/better ways to do things at work

	stayed the same	*improved*	*improved a lot*
w/s	18 %	37 %	15 %
DH/s	88.9 %	11.1 %	%

5.*Workers work well with co-workers

	stayed the same	*improved*	*improved a lot*
w/s	30 %	48 %	22 %
DH/s	55.6 %	33.4 %	11 %

6.*Workers are developing sense of team work and team identity

	stayed the same	*improved*	*improved a lot*
w/s	18.2 %	65.5 %	16.4 %
DH/s	44.5 %	55.5 %	%

7.*Workers can describe their jobs

	stayed the same	*improved*	*improved a lot*
w/s	**18.2** %	**63.6** %	**16.4** %
DH/s	**55.6** %	**44.4** %	%

8.*Workers can relate their jobs to overall production of capacitors at Aerovox

	stayed the same	*improved*	*improved a lot*
w/s	**13** %	**67** %	**20** %
DH/s	**77.8** %	**22.2** %	%

9.*Workers inspect parts of their equipment

	stayed the same	*improved*	*improved a lot*
w/s	**34.5** %	**49.1** %	**16.4** %
DH/s	**44.4** %	**55.6** %	%

10.*Workers practice maintenance of their equipment

	stayed the same	*improved*	*improved a lot*
w/s	**32.7** %	**56.4** %	**10.9** %
DH/s	**55.6** %	**33.3** %	**11.1** %

11.*Workers practice cleanliness of their equipment/surroundings

	stayed the same	*improved*	*improved a lot*
w/s	**23.6** %	**61.8** %	**14.5** %
DH/s	**77.8** %	**22.2** %	%

12.*Workers take safety precautions

	stayed the same	*improved*	*improved a lot*
w/s	**18.2** %	**65.5** %	**16.4** %
DH/s	**33.3** %	**66.7** %	%

13.*Workers understand need for Quality Control

	stayed the same	*improved*	*improved a lot*
w/s	**13** %	**67** %	**20** %
DH/s	**55.6** %	**44.4** %	%

14.*Workers understand the purpose of having an MPI

	stayed the same	*improved*	*improved a lot*
w/s	**43.6 %**	**43.6 %**	**12.7 %**
DH/s	**44.4 %**	**55.6 %**	**%**

15.*Workers can follow their MPI

	stayed the same	*improved*	*improved a lot*
w/s	**50.9 %**	**36.4 %**	**12.7 %**
DH/s	**44.4 %**	**55.6 %**	**%**

16.*Workers can follow MPIs from other sections

	stayed the same	*improved*	*improved a lot*
w/s	**56.4 %**	**36.4 %**	**7.3 %**
DH/s	**66.7 %**	**33.3 %**	**%**

17.*Workers can read graphs around the plant

	stayed the same	*improved*	*improved a lot*
w/s	**58.2 %**	**34.5 %**	**7.3 %**
DH/s	**66.7 %**	**33.3 %**	**%**

18.*Workers can construct a graph

	stayed the same	*improved*	*improved a lot*
w/s	**61.8 %**	**32.7 %**	**5.5 %**
DH/s	**88.9 %**	**11.1 %**	**%**

19.*Workers can understand SPC procedures at Aerovox

	stayed the same	*improved*	*improved a lot*
w/s	**50.9 %**	**45.5 %**	**3.6 %**
DH/s	**55.6 %**	**44.4 %**	**%**

20.*Workers could take part in SPC procedures if asked to do so

	stayed the same	*improved*	*improved a lot*
w/s	**58.2%**	**40.0 %**	**1.8 %**
DH/s	**55.6 %**	**44.4**	**%**

21.*Workers understand Right to Know

	stayed the same	*improved*	*improved a lot*
w/s	**38.2%**	**58.2 %**	**3.6 %**
DH/s	**44.4 %**	**55.6 %**	**%**

OBSERVATIONS:

Responses from Department head/supervisors compared to Worker/Student Responses.

Student/worker responses were more positive than those of department heads/supervisors. I believe that there may be several reasons for this.

One may be the very nature of the floor at Aerovox. The departments at Aerovox work on tight schedules and the department heads are responsible for for a large number of workers and have a production expectation to meet. Workers at Aerovox are experienced and competent--most have had years on the floor and reached a degree of expertise that no workplace literacy or any other program would change.

Department heads responsible for large numbers of workers would see the same competent workers on the line and it would be difficult for them to assess (for example) whether or not workers related their jobs to overall production at Aerovox. Many of the jobs that our worker/students are doing at present do not reflect the skills that workers are learning in the classroom. These skills are preparing students for moves that they will be making into positions requiring a wider range of skills, ability to deal with the new MPIs and different QC (including SPC) methods plus the opportunity to trouble shoot and problem solve.

Finally, what we should probably have included in this assessment, is the change in the morale and company involvement in the workers involved in the program. This was pointed out by the Production Manager who said: "Workers come to the plant in better spirits; their days hold more for them than they did before Workplace Literacy.

Some interesting exceptions to Department Head /Worker response discrepancies were:
(a) Questions about MPIs
Here the dept.head/supervisor response is either more positive than student response, or almost identical.

*Workers understand the purpose of having an MPI

	stayed the same	*improved*	*improved a lot*
w/s	**43.6 %**	**43.6 %**	**12.7 %**
DH/s	**44.4 %**	**55.6 %**	**%**

*Workers can follow their MPI

	stayed the same	*improved*	*improved a lot*
w/s	**50.9 %**	**36.4 %**	**12.7 %**
DH/s	**44.4 %**	**55.6 %**	**%**

•Workers can follow MPIs from other sections

	stayed the same	*improved*	*improved a lot*
w/s	**56.4 %**	**36.4 %**	**7.3 %**
DH/s	**66.7 %**	**33.3 %**	**%**

(b) Questions regarding SPC procedures & Right to Know
Here again, dept.head/supervisor responses are more positive or virtually agree with worker/student responses.

•Workers can understand SPC procedures in the plant

	stayed the same	*improved*	*improved a lot*
w/s	**50.9 %**	**45.5 %**	**3.6 %**
DH/s	**55.6 %**	**44.4 %**	**%**

•Workers could take part in SPC procedures if asked to do so

	stayed the same	*improved*	*improved a lot*
w/s	**58.2 %**	**40.0 %**	**1.8 %**
DH/s	**55.6 %**	**44.4 %**	

•Workers understand Right to Know

	stayed the same	*improved*	*improved a lot*
w/s	**38.2 %**	**58.2 %**	**3.6 %**
DH/s	**44.4 %**	**55.6 %**	**%**

The statements

•Workers can understand SPC procedures in the plant

•Workers could take part in SPC procedures if asked to do so

to which only 49.1 & 41.8 % of students responded as having improved is a reasonable % age. English for Special Purposes classes and the Express GED classes have not yet included SPC procedures in their lessons.

Some of the job specific skills could not be taught in some classes.
For example:
Pre-SPC Math classes which are of 12 hours duration, do not go into reading and understanding of MPIs. The emphasis is on acquiring math skills that will enable them to understand SPC

English for Special Purposes classes have lessons built around understanding MPIs but have math classes that concentrate on understanding math terms and problem solving in English and do not yet aspire to more advanced math.

The data which cross references the responses from different departments shows many examples like the following:

•Workers practice maintenance of their equipment

	stayed the same	*improved*	*improved a lot*
w/s	32.7 %	56.4 %	10.9 %
DH/s	55.6 %	33.3 %	11.1 %

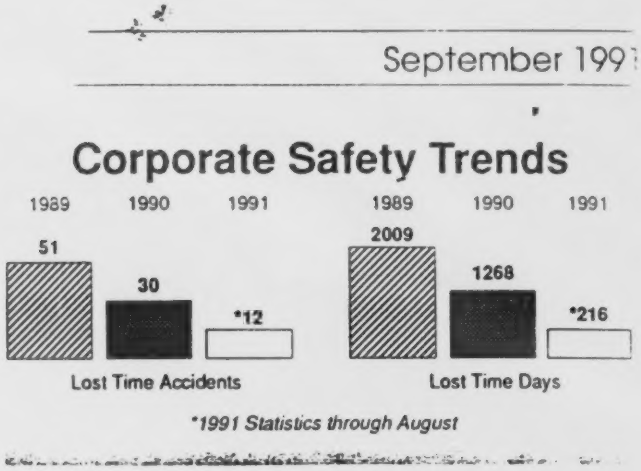
Department 27 which includes both MPP Assembly and MPP Winding states that 32 % remained the same, 55.9 % improved and that 11.8 % improved a lot.
The 32% of students who felt that they remained the same, came from the more necessarily stringent Winding Department; those who felt that they had improved, came from the assembly line. I would have been disheartened by the survey, if I had heard those from MPP Winding claim that they were now taking better care of their equipment. I would not have believed their responses.

I think that we should take particular notice of the following figures:

•Workers take safety precautions

	stayed the same	*improved*	*improved a lot*
w/s	18.2 %	65.5 %	16.4 %
DH/s	33.3 %	66.7 %	%

This is an encouraging response and one that can be substantiated by the following graph which appeared in the September 1991 edition of the *Aerovox Newsletter*



September 199

Corporate Safety Trends

*1991 Statistics through August

I believe that one of the essentials of successful workplace literacy programs is that senior and middle management, workers and educators agree on the goals of the program and work together to accomplish these goals. Aerovox has been congratulated for the strength of the support that management has given to the program (including the hours of company time which have been devoted to it) and on many occasions there has been praise given to the production managers and department heads. The congratulations were certainly earned, the praise most highly deserved. I should like, though, to bring before you an example of workplace literacy at its best.

I do not want to name these people but there is one worker/student who is learning English for Special Purposes. This worker has a supervisor and another older worker who take a warm interest in her. These women speak to her in English; they help and correct her; they check on what she is doing in class and follow it up with her. When one of them filled in the supervisor's report, she beamed. 'We're so happy for her." she said. The following is a breakdown of their separate answers.

Both supervisors and worker/student answered:

stayed the same	to questions on	3,4,8, 11,16-21. 9 questions that both agree have not yet been covered in the 26 hours of classes
improved	to questions on	1,2,6,8,11-14

While only supervisors gave an

improved a lot	to questions on	Workers work well with co-workers & Workers practice mainteance of their equipment

OVERALL TRENDS

When department head/supervisor responses were examined it was apparent that d.h./s.who have w/s from the 'less skilled' bracket (that is those who are part of the ESP, Adult Ed 1 & Pre SPC math classes) saw more improvement in workers in their departments/ These dh/s came from Dept 27 (MPP Assembly), Dept. 25 (Sub Assembly) and Dept. 21 (Assembly)

Other Department heads and supervisors whose departments are made up of 'more sophisticated ' workers saw no change in their work related skills. These DH/Sups come from the Electronics section of Aerovox and Depts 20 (Winding),
27 (MPP Winding), 22 (Final Test) , Shipping and Maintenance.

Responses from student/workers reflected the same trend.

Those who attended GED and Adult Ed 2 classes made up 50-100% of all the *'stayed the same"* responses. In retrospect it is obvious that we should have included a 4th response to questions that indicated that student/worker was already in possession of the skill before classes began..

There may also be a matter of timing. GED (and many Adult Ed 2) students had completed classes long before the survey took place. Possibly their perceptions are more realistic but I am inclined to think that they did not bring the same thought to their responses as that brought by students who took class time to sit down and consider their answers.

FINDINGS of Department Head/Supervisor answers to questions on Workplace Lit Program

100% of all DH/supervisors actively encourage students to take part in the program
100% of all DH/supervisors understand the program in place
100% of all DH/supervisors keep track of errors and who made them

33% of DH/Supervisors stated that their production was OFTEN disrupted by students coming to classes
33% of DH/Supervisors stated that their production was SOMETIMES disrupted by students coming to classes
44% of DH/Supervisors stated that their production was SELDOM disrupted by students coming to classes

The departments that stated that their production was OFTEN disrupted were Department 27 (Both MPP Assembly & Winding) and Department 22(Final Test).
At the date of the survey , MPP Assembly had had 54 workers enrolled in classes. Despite her problems with production interruption, the Department Head has been one of the strongest supporters of the program. She has never refused permission for a student to leave the floor although at times she has had to limit the amount of time that several key operators could be away from the floor. This Department Head has also taken time to reorganize her lines so that those whom we felt were most motivated and could most benefit from classes could leave for class. In common with all Department Heads, she has shown workers her pride and delight at their successes.
MPP Winding and Final Test Department Heads have had fewer students enrolled in programs but these have often been highly skilled operators who were difficult to replace. At all times, however, they have given motivated students every encouragement to take part.

78 % of all DH/Supervisors believe that they should identify areas needing improvemnt in the program while 22% do not.

One improvement was suggested and that was that even more emphasis should be placed on quality training.

FINDINGS

B. ASTD Questions

(Questions that were included in Work Related Skills (reported above) have been removed)

WORKER/STUDENT RESPONSE AS FOLLOWS
I. Foundation -- knowing how to learn

•I like to learn

stayed the same	*improved*	*improved a lot*
5%	67%	28%

The five % who *stayed the same* came from three successful graduates from the Express GED class. These students had 'liked to learn' all their lives.

•I know where to go for information to answer my questions (to a library, to a person)

stayed the same	*improved*	*improved a lot*
20%	*63%*	*17%*

In our classes we have worked towards individual goal setting and study skills. The 20% who state that they *stayed the same* came from the fast paced GED Express class or from those who competed the first cycle in my own ESP classes which , I regret to say, must imply that some of the students were over dominated by their teacher.

II. Communication -- listening and oral communication

•I listen to my co-workers' questions

stayed the same	*improved*	*improved a lot*
20%	*54%*	*26%*

Half of the 20% who *stayed the same* were again from the fast paced GED Express Class. I think that this was a skill already firmly in place for the rest of the 20%

•I listen to my family members--wife/husband/children/other family/friends

stayed the same	*improved*	*improved a lot*
17%	*66%*	*17%*

Again, half of the 20% who *stayed the same* were from the fast paced GED Express Class. I think that this was a skill already firmly in place for the rest of the 20%

•I ask questions clearly

stayed the same	*improved*	*improved a lot*
26%	*61%*	*13%*

The 'more sophisticated' classes (that is GED, and Adult ED 2) made up the 26% who *stayed the same.* When I examine the responses I believe this to be true for many of the *stayed the sames*. These students were already confident of this skill.

•I give explanations

stayed the same	*improved*	*improved a lot*
24%	*65%*	*11%*

As before the 'more sophisticated' classes (that is GED, and Adult ED 2) made up the 26% who *stayed the same.* When I examine the responses I believe this to be true for many of the *stayed the sames.* These students were already confident of this skill.

III. Adaptability--creative thinking and problem solving
•I think about new/better ways to do things at work

stayed the same	*improved*	*improved a lot*
14%	*66%*	*20%*

The *stayed the sames* came from workers in positions of high skills in departments with highly honed procedures. One of these students however recently received an Aerovox award as a problem alert winner.

IV. Personal Management -- self esteem, goal setting, motivation, and personal and career development

•I value my opinions and my contributions

stayed the same	*improved*	*improved a lot*
22%	*61%*	*17%*

I am confident that our program has done a great deal to enhance self confidence in worker students.

•I offer my opinions to others

stayed the same	*improved*	*improved a lot*
20%	*72%*	*8%*

As above.

•I plan ahead in my personal life

stayed the same	*improved*	*improved a lot*
31%	*51%*	*18%*

We have emphasised personal goal setting in our classses.........

•I plan ahead at work

stayed the same	*improved*	*improved a lot*
30%	*59%*	*11%*

.........but we obviously need to have more discussion on it.

•I am comfortable working alone

stayed the same	*improved*	*improved a lot*
31%	*56%*	*13%*

The workers who stayed the same on this are in positions in the company where they have had experience in working alone for years. I think that we could have rephrased or rethought this question.

•I am a more active member of my community (ex. Church, school groups, community groups, other)

stayed the same	*improved*	*improved a lot*
48%	*46%*	*6%*

The Portuguese community is close knit and those of Portuguese descent are firmly entrenched members of their church and community groups.

V. **Group Effectiveness** -- interpersonal skills, negotiation and teamwork

•I am willing to negotiate my needs and the needs of my group with my department head or group leader

stayed the same	*improved*	*improved a lot*
30%	*59%*	*11%*

Not yet.

•I am supportive of others' efforts to increase their skills

stayed the same	*improved*	*improved a lot*
24%	*59%*	*17%*

The outreach from those already in the program to fellow workers has been one of its most warming aspects. An example could be taken from students in MPP Winding. They worked as teams towards their GED goal, studied together, made appointments for the exams together, comforted and encouraged those who had slipped below the pass score to try again. This team work has been in place for almost a year and their success rates have been a credit to it.

•I am supportive of others' learning efforts at home(example: husband/wife, children, other family, friends)

stayed the same	*improved*	*improved a lot*
17%	*70%*	*13%*

The response from workers who took the 'more basic' courses is reflected. They now have the confidence in their abilities to help their families.

VII. **Influence** -- organizational effectiveness and leadership

•I understand the long term goals of Aerovox and the essential part that education plays in making these goals a reality

stayed the same	*improved*	*improved a lot*
16%	*54%*	*30%*

•I understand that it is possible for me to advance in the company as I increase my skills

stayed the same	*improved*	*improved a lot*
13%	*70%*	*17%*

OVERALL TRENDS

Responses from the short term and more advanced classes make up the largest proportions of *stayed the sames* . We should have had a preknowlege choice

FINDINGS

B. COMPETENCIES - BY CLASS

1. Competence: Pre-SPC Math Workshop
Competence limited to math skills as below

Responses from 9 students from the first group who completed the 6 week and twelve hour workshop.

*I am able to understand decimal notation

stayed the same	*improved*	*improved a lot*
22%	*67%*	*11%*

*I am able to add whole numbers

stayed the same	*improved*	*improved a lot*
11%	*56%*	*33%*

*I am able to add decimals

stayed the same	*improved*	*improved a lot*
22%	*45%*	*33%*

*I am able to subtract whole numbers

stayed the same	*improved*	*improved a lot*
0%	*67%*	*33%*

*I am able to subtract decimals

stayed the same	*improved*	*improved a lot*
0%	*78%*	*22%*

*I am able to multiply whole nunbers

stayed the same	*improved*	*improved a lot*
11%	*33%*	*56%*

*I am able to multiply decimals

stayed the same	*improved*	*improved a lot*
11%	*56%*	*33%*

*I am able to divide whole numbers

stayed the same	*improved*	*improved a lot*
11%	*56%*	*33%*

*I am able to divide decimals

stayed the same	*improved*	*improved a lot*
11%	*78%*	*11%*

*I am able to change fractions to decimals

stayed the same	*improved*	*improved a lot*
11%	*78%*	*11%*

*I am able to read graphs

stayed the same	*improved*	*improved a lot*
22%	*56%*	*22%*

*I am able to graph

stayed the same	*improved*	*improved a lot*
22%	*67%*	*11%*

*I am able to find averages

stayed the same	*improved*	*improved a lot*
11%	*67%*	*22%*

*I am able to use calculator-addition/subtraction/multipication/division (With or without decimals)

stayed the same	*improved*	*improved a lot*
11%	*56%*	*33%*

Teacher assessment:

Here teacher assessment most closely paralled those of the students.The same criteria were used and she based her assessment on her pre- and post-workshop tests and her own observations.

2. Competence: English for Special Purposes

ESP (ESL classes with emphasis on job related language). Responses came from 20 students who were divided into two groups --
(a) ESP 1(Beginners) & (Pre-Intermediate) ----2 cycles completed--the first of 48 hours, the second of 24 and
(b) ESP 2 (Beginners)--with one competed cycle of 26 hours.

Reading

•I need less translation from my native language into English

stayed the same	*improved*	*improved a lot*
0%	*75%*	*25%*

•I am able to read signs and notices around the plant

stayed the same	*improved*	*improved a lot*
0%	*75%*	*25%*

•I am able to identify an MPI

stayed the same	*improved*	*improved a lot*
25%	*50%*	*25%*

(half of the ESP classes had not progressed to the studying of MPIs)

•I am able to locate and use sections of MPI

stayed the same	*improved*	*improved a lot*
25%	*50%*	*25%*

(half of ESP classes had not progressed to MPIs)

•I am able to understand Aerovox graphs

stayed the same	*improved*	*improved a lot*
25%	*75%*	*0%*

(Not all classes had studied graphs)

Writing

•I am able to fill out forms

stayed the same	*improved*	*improved a lot*
12.5%	*87.5%*	

•I am able to fill out time tickets

stayed the same	*improved*	*improved a lot*
0%	*75%*	*25%*

•I am able to fill out inspection sheets (if applicable)

stayed the same	*improved*	*improved a lot*
0%	*93%*	*7%*

Computation

*I am able to understand different math terms in English

stayed the same	*improved*	*improved a lot*
14%	*78%*	*8%*

*I am able to do basic addition and subtraction

stayed the same	*improved*	*improved a lot*
25%	*50%*	*25%*

*I am able to solve word problems

stayed the same	*improved*	*improved a lot*
37%	*50%*	*13%*

*I am able to estimate answers

stayed the same	*improved*	*improved a lot*
30%	*69%*	*0%*

Teacher assessment:
We should have used different competencies for theseo groups. Obviously those who had completed 2 cycles (with 72contact hours) gave more positive responses than those who had completed one cycle (26 contact hours) But a compartison with teacher assessment records paralled student assessment in both groups.

3. Competence: GED

. GED . Responses from 9 students who had completed a cycle of 8 weeks and 32 hours (GED Express) or Pre-GED (12 weeks and 48 hours) or Pre-GED (12 weeks and 48 hours) plus GED (12 weeks and 48 hours)

Reading

*I am able to use given or remembered ideas in a different context from the one provided

stayed the same	*improved*	*improved a lot*
66%	*23%*	*11%*

*I am able to restate information

stayed the same	*improved*	*improved a lot*
67%	*22%*	*11%*

*I am able to summarize ideas

stayed the same	*improved*	*improved a lot*
67%	*22%*	*11%*

*I am able to identify ideas that are implied

stayed the same	*improved*	*improved a lot*
56%	*23%*	*11%*

*I am able to read manufacturing process instructions

stayed the same	*improved*	*improved a lot*
56%	*33%*	*22%*

*I am able to draw conclusions from articles

stayed the same	*improved*	*improved a lot*
56%	*33%*	*11%*

*I am able to distinguish facts from opinions

stayed the same	*improved*	*improved a lot*
67%	*11%*	*22%*

*I am able to distinguish a conclusion from supporting statements

stayed the same	*improved*	*improved a lot*
56%	*44%*	*0%*

*I am able to distinguish cause and effect relationships

stayed the same	*improved*	*improved a lot*
56%	*44%*	*)%*

*I am able to make judgments about the accuracy of information

stayed the same	*improved*	*improved a lot*
56%	*44%*	*0%*

Writing

A . Writing Skills

*I can identify and correct sentence fragments

stayed the same	*improved*	*improved a lot*
33%	*67%*	

*I can identify and correct run-on sentences

stayed the same	*improved*	*improved a lot*
22%	*56%*	*22%*

*I can identify and correct comma splices

stayed the same	*improved*	*improved a lot*
22%	*56%*	*22%*

*I can check subject/verb agreement

stayed the same	*improved*	*improved a lot*
22%	*78%*	*0%*

*I can check verb tense agreement

stayed the same	*improved*	*improved a lot*
22%	*78%*	*0%*

*I can correct capitalization

stayed the same	*improved*	*improved a lot*
22%	*78%*	*0%*

*I can correct punctuation

stayed the same	*improved*	*improved a lot*
33%	*56%*	*11%*

B. Writing an Essay

•I am able to form and state an opinion

stayed the same	*improved*	*improved a lot*
44%	45%	11%

•I am able to support my opinion

stayed the same	*improved*	*improved a lot*
33%	45%	22%

•I am able to form and state an explanation

stayed the same	*improved*	*improved a lot*
22%	67%	11%

•I am able to back up my explanation

stayed the same	*improved*	*improved a lot*
44%	45%	11%

•I am able to state a conclusion

stayed the same	*improved*	*improved a lot*
33%	57%	11%

•I am able to write a clear essay

stayed the same	*improved*	*improved a lot*
44%	56%	0%

•I am able to write a straightforward letter

stayed the same	*improved*	*improved a lot*
33%	67%	0%

Computation

•I am able to read and solve word problems

stayed the same	*improved*	*improved a lot*
11%	*785*	*11%*

• I am able to read graphs and tables

stayed the same	*improved*	*improved a lot*
56%	*22%*	*22%*

•I am able to use formulas for perimeter

stayed the same	*improved*	*improved a lot*
44%	*34%*	*22%*

•I am able to use formulas for area

stayed the same	*improved*	*improved a lot*
33%	*45%*	*22%*

•I am able to use formulas for volume

stayed the same	*improved*	*improved a lot*
11%	*56%*	*33%*

•I am able to use formulas for circumference

stayed the same	*improved*	*improved a lot*
22%	*675*	*11%*

•I am able to use formulas for distance and cost

stayed the same	*improved*	*improved a lot*
22%	*56%*	*22%*

•I am able to use ratio and proportion to solve word problems

stayed the same	*improved*	*improved a lot*
22%	*56%*	*22%*

•I am able to understand probablility, mean, median

stayed the same	*improved*	*improved a lot*
22%	*67%*	*11%*

•I am able to use basic algebra to solve word problems

stayed the same	*improved*	*improved a lot*
22%	*67%*	*22%*

•I am able to use formula for finding the slope of a line

stayed the same	*improved*	*improved a lot*
22%	*675*	*22%*

•I am able to plot and find points on an x, y axis

stayed the same	*improved*	*improved a lot*
22%	*565*	*22%*

•I am able to use pythagorean relationship to solve hypotoneuse problems w/ triangles

stayed the same	*improved*	*improved a lot*
22%	*56%*	*22%*

•I am able to understand angle relationships

stayed the same	*improved*	*improved a lot*
11%	*78%*	*11%*

•I am able to measure angles of a triangle and solve similarity problems

stayed the same	*improved*	*improved a lot*
0%	*78%*	*22%*

Teacher assessment:

Here comparison of teacher and student assessments showed that there were virtually parallel assessments in Math (although the teacher found fewer *stayed the sames*) There were discrepancies in the comparisons between reading and writing assessments where teachers assessed greater improvement. Many of these criteria are, of course, judged more subjectively.

4. Competence: Pre - Adult Secondary Education and Pre-Adult Secondary Education / ASE (Adult Education 2)

3. Adult Education 2 . Responses from 5 students who had completed one 12 week cycle of 48 hours or two twelve week cycles of 48 hours or three 12 week cycles of 48 hours, (and who, at some stage, might have moved from Ad. Ed 1 to Ad. Ed 2)

Reading

•I am able to answer T/F questions about work materials

stayed the same	*improved*	*improved a lot*
	80%	*20%*

•I am able to answer T/F questions about local newspaper articles

stayed the same	*improved*	*improved a lot*
20%	*80%*	

•I am able to answer multiple choice questions about work materials

stayed the same	*improved*	*improved a lot*
20%	*80%*	

•I am able to answer multiple choice questions about articles from local newspapers

stayed the same	*improved*	*improved a lot*
20%	*80%*	

•I am able to use context to work out the meanings of words

stayed the same	*improved*	*improved a lot*
40%	*40%*	*20%*

•I am able to use some root words/prefixes or suffixes to work out meanings of words

stayed the same	*improved*	*improved a lot*
20%	*80%*	

•I am able to use a dictionary

stayed the same	*improved*	*improved a lot*
40%	*20%*	*80%*

Writing

*I am able to capitalize

stayed the same	*improved*	*improved a lot*
20%	*40%*	*405*

*I am able to punctuate using capitals and periods

stayed the same	*improved*	*improved a lot*
	80%	*20%*

*I am able to punctuate questions, commands and explanations

stayed the same	*improved*	*improved a lot*
20%	*80%*	

*I am able to identify nouns

stayed the same	*improved*	*improved a lot*
	60%	*40%*

*I am able to use pronouns correctly

stayed the same	*improved*	*improved a lot*
20%	*80%*	

*I am able to use different verb times

stayed the same	*improved*	*improved a lot*
	100%	

*I am able to make subject /verb agreement

stayed the same	*improved*	*improved a lot*
	100%	

*I am able to identify sentence fragments

stayed the same	*improved*	*improved a lot*
	100%	

*I am able to identify run- on sentences

stayed the same	*improved*	*improved a lot*
20%	*80%*	

*I am able to identify comma splices

stayed the same	*improved*	*improved a lot*
40%	*60%*	

•I am able to write clear sentences

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to combine sentences using connecting words

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to write a short summary

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to write a short paragraph

stayed the same	*improved*	*improved a lot*
	100%	

Computation

•I am aware of all symbols defining operations

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to read and solve word problems in addition using whole numbers

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to read and solve word problems in subtraction using whole numbers

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to read and solve word problems in multipication using whole numbers

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to read and solve word problems in division using whole numbers

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to understand decimal notation

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to add decimals

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to subtract decimals

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to multiply decimals

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to divide decimals

stayed the same	*improved*	*improved a lot*
	100%	

•I am able to read and solve word problems in addition using decimals

stayed the same	*improved*	*improved a lot*
	60%	*40%*

•I am able to read and solve word problems in subtraction using decimals

stayed the same	*improved*	*improved a lot*
	80%	*20%*

•I am able to read and solve word problems in multipication using decimals

stayed the same	*improved*	*improved a lot*
	80%	*20%*

•I am able to read and solve word problems in division using decimals

stayed the same	*improved*	*improved a lot*
	80%	*20%*

•I am able to add fractions

stayed the same	*improved*	*improved a lot*
	60%	*40%*

•I am able to subtract fractions

stayed the same	*improved*	*improved a lot*
	60%	*40%*

•I am able to multiply fractions

stayed the same	*improved*	*improved a lot*
	80%	*20%*

•I am able to divide fractions

stayed the same	*improved*	*improved a lot*
	80%	*20%*

•I can get information from graphs

stayed the same	*improved*	*improved a lot*
20%	*60%*	*20%*

•I can get information from tables

stayed the same	*improved*	*improved a lot*
20%	*80%*	

•I am able to plot an SPC chart accurately

stayed the same	*improved*	*improved a lot*
40%	*60%*	

•I understand what to do when SPC readings are not within the tolerance

stayed the same	*improved*	*improved a lot*
20%	*80%*	

Teacher Assessment:

Teachers felt that there had been more improvement in reading and writing and that a percentage of of the math skills had improved a lot

Competence; Adult Basic Education (Adult Education 1)

Adult Education 1
Responses from 12 students who had completed one 12 week cycle of 48 hours or two 12 week cycles of 48 hours or three 12 week cycles of 48 hours

Reading

•I can figure out the meaning of new words by reading the whole sentence and/or the whole paragraph

stayed the same	*improved*	*improved a lot*
9%	*91%*	

•I can answer questions about what I have read

stayed the same	*improved*	*improved a lot*
	91%	*9%*

•I have strategies for reading (ex. I can understand new words by looking at the whole sentence or paragraph .)

stayed the same	*improved*	*improved a lot*
9%	*73%*	*18%*

•I know its most important that I understand the whole story and its OK if I don't understand a word or two

stayed the same	*improved*	*improved a lot*
	82%	*18%*

•I have strategies for answering questions about a story. When I answer a question, I go back to the story to make sure I'm getting the right answer

stayed the same	*improved*	*improved a lot*
	91%	*9%*

•I am sure that reading is a matter of practicing. The more I do--the better I get

stayed the same	*improved*	*improved a lot*
	82%	*18%*

• I read more

stayed the same	*improved*	*improved a lot*
9%	*64%*	*27%*

• I can understand bar graphs

stayed the same	*improved*	*improved a lot*
	82%	*18%*

•I can read a US Map

stayed the same	*improved*	*improved a lot*
9%	*73%*	*18%*

* I know about US geography

stayed the same	*improved*	*improved a lot*
36%	*37%*	

Writing

*I know that writing is a matter of practice--the more I do it-the better I get

stayed the same	*improved*	*improved a lot*
	91%	*9%*

*I can write sentences

stayed the same	*improved*	*improved a lot*
	82%	*18%*

*I can organize my sentences

stayed the same	*improved*	*improved a lot*
9%	*82%*	*9%*

*I name the most important idea first, then the second most important one etc

stayed the same	*improved*	*improved a lot*
9%	*82%*	*9%*

*I can write a short summary

stayed the same	*improved*	*improved a lot*
	91%	*9%*

*I can write a short paragraph (in response to a question)

stayed the same	*improved*	*improved a lot*
9%	*82%*	*9%*

Computation (As for Pre-ASE-ASE or Adult Ed2)

•I am aware of all symbols defining operations

stayed the same	*improved*	*improved a lot*
18%	73%	9%

•I am able to read and solve word problems in addition using whole numbers

stayed the same	*improved*	*improved a lot*
	54%	46%

•I am able to read and solve word problems in subtraction using whole numbers

stayed the same	*improved*	*improved a lot*
	64%	36%

•I am able to read and solve word problems in multipication using whole numbers

stayed the same	*improved*	*improved a lot*
	64%	36%

•I am able to read and solve word problems in division using whole numbers

stayed the same	*improved*	*improved a lot*
	64%	36%

•I am able to understand decimal notation

stayed the same	*improved*	*improved a lot*
	73%	27%

•I am able to add decimals

stayed the same	*improved*	*improved a lot*
	64%	36%

•I am able to subtract decimals

stayed the same	*improved*	*improved a lot*
	64%	36%

•I am able to multiply decimals

stayed the same	*improved*	*improved a lot*
	64%	36%

•I am able to divide decimals

stayed the same	*improved*	*improved a lot*
	73%	27%

•I am able to read and solve word problems in addition using decimals

stayed the same	*improved*	*improved a lot*
	73%	27%

•I am able to read and solve word problems in subtraction using decimals

stayed the same	*improved*	*improved a lot*
	73%	27%

•I am able to read and solve word problems in multipication using decimals

stayed the same	*improved*	*improved a lot*
	73%	27%

•I am able to read and solve word problems in division using decimals

stayed the same	*improved*	*improved a lot*
	73%	27%

*I am able to add fractions

stayed the same	*improved*	*improved a lot*
	64%	*36%*

*I am able to subtract fractions

stayed the same	*improved*	*improved a lot*
	64%	*36%*

*I am able to multiply fractions

stayed the same	*improved*	*improved a lot*
	73%	*27%*

*I am able to divide fractions

stayed the same	*improved*	*improved a lot*
	64%	*36%*

*I can get information from graphs

stayed the same	*improved*	*improved a lot*
	54%	*46%*

*I can get information from tables

stayed the same	*improved*	*improved a lot*
9%	*55%*	*36%*

*I am able to plot an SPC chart accurately

stayed the same	*improved*	*improved a lot*
9%	*82%*	*9%*

*I understand what to do when SPC readings are not within the tolerance

stayed the same	*improved*	*improved a lot*
18%	*73%*	*9%*

Teacher Assessment:
Virtually parallel with student assessment

OBSERVATIONS

We spent some time putting together these competencies and discussed them with the students. While we were not entirely satisfied with them, we decided that we were satisfied enough to use them for our goals and student pre and final assessment sheets for each cycle. We will continue to make adjustments and changes to them but think that they make a good basis for individual and class records. Teacher assessments which had been made before and after each cycle were not always based on the evaluation criteria and were not fed into the SPSS program. When several different groups were included in the overall response, as was the case in each class with the exception of the Pre-SPC Math Workshops , the compared teacher assessments were not always parallel with student assessments. This was particularly true of the GED classes, when some of the students would claim that many of the skills were already in place and just needed revision. In some cases this may be true and in some cases it might be linked with pride. Which is just fine.

SUGGESTIONS FOR FUTURE SURVEYS:

1. I have suggested in my final Workplace Literacy report that in future after proposals have been received by the DOE that they should short list the candidates and that before the final grants are awarded, a representative from DOE should visit partners on the short list. The representative should ensure that each partner fully understands his responsibilities and is prepared to honor them. One of the issues that should be discussed is that of evaluation--its goals and the team work and company involvement in the process. Only after all partners fully understand this and other issues and an agreement has been reached, should the final grantees be chosen. I think Aerovox will value this evaluation and appreciate that we will be able to use the results for cross checking with company records on production, Quality control and safety , but it would certainly have been an advantage if the evaluation process had been accepted at the outset.

2. When responses have been collected from an inital evaluation like this one, it would be valuable if the initial data could be processed by a central consultant --preferably one hired by the DOE.We do not provide computer classes in the Workplace Lit. program at Aerovox and the systems used at UMass and in the plant were not compatible with the SPSS system available. When we finally got some of the data into place and received the results, it was suggested to me that it would have been less time consuming if I'd simply sat down with a calculator and a pen and pencil. This sounds rather defeatist , but it is true that while I very much approve of the idea of computer analysis and believe that we can overcome the difficulties that we had this time, I think that a central consultant would have been cost effective.

3. We intend to make the survey an on-going process. Students and department heads will be asked for responses both before and after each cycle.We will include the Pre-knowledge option in our questionaires. As I have already said, we are reviewing regularly and making the questionaires part of the basis for goal and expectation setting. Teachers will be basing individual and class assessments on the competencies and some of the ASTD questions.

4. I hope that future surveys will include a researcher of the dedication and understanding of Laura Sperazi who made all this possible.

Self Report Checklist for Education Program Participants
University of Massachusetts, Dartmouth & Aerovox, Inc.
Technical English Skills Program

Year of birth: ______________ Country of Origin: _____________

Gender: M / F Marital Status: M / S/ D/ W
(married, single, divorced, widowed)

Number and ages of children: ____________________________________

Native language: 0 Portuguese 0 Korean Other: ______________________

Other languages: ____

Language(s) used at home: _______________________________________

Language(s) used at work: _______________________________________

Year of Arrival in US: ________________

Occupation in country of origin: __________________________________

Occupation in US: ____

Number of years at Aerovox:_________

Education in country of origin: (from age ____to _____)

Education in US: No / Yes (last grade completed)______________________

V. **Personal Management** -- self esteem, goal setting, motivation, and personal and career development

*I value my opinions and my contributions

stayed the same *improved* *improved a lot*

*I offer my opinions to others

stayed the same *improved* *improved a lot*

*I plan ahead in my personal life

stayed the same *improved* *improved a lot*

(If you wish, please say what your plans are:____________________

____

____)

*I plan ahead at work

stayed the same *improved* *improved a lot*

(If you wish, please say what your plans are:____________________

____)

*I am comfortable working alone

stayed the same *improved* *improved a lot*

*I am a more active member of my community (ex. Church, school groups, community groups, other)
Please name group/s__________________________________

stayed the same *improved* *improved a lot*

VI. **Group Effectiveness** -- interpersonal skills, negotiation and teamwork

*I work well with my co-workers

stayed the same *improved* *improved a lot*

*I am developing a sense of team work and team identity

stayed the same *improved* *improved a lot*

*I am willing to negotiate my needs and the needs of my group with my department head or group leader

stayed the same *improved* *improved a lot*

*I am supportive of others' efforts to increase their skills

stayed the same *improved* *improved a lot*

VIII. Other job-specific tasks or skills

•I can describe my job

stayed the same *improved* *improved a lot*

• can relate my job to the overall production of capacitors

stayed the same *improved* *improved a lot*

•I inspect parts of my equipment

stayed the same *improved* *improved a lot*

•I practice maintenance of my equipment

stayed the same *improved* *improved a lot*

•I practice cleanliness of my equipment/surroundings

stayed the same *improved* *improved a lot*

•I take safety precautions

stayed the same *improved* *improved a lot*

•I understand need for Quality Control

stayed the same *improved* *improved a lot*

•I understand the purpose of having an MPI

stayed the same *improved* *improved a lot*

•I can follow my MPI

stayed the same *improved* *improved a lot*

•I can follow MPIs from other sections

stayed the same *improved* *improved a lot*

•I can read graphs around the plant

stayed the same *improved* *improved a lot*

•I can construct a graph

stayed the same *improved* *improved a lot*

•I can understand SPC procedures in the plant

stayed the same *improved* *improved a lot*

•I could take part in SPC if asked to do so

stayed the same *improved* *improved a lot*

•I understand Right to Know

stayed the same *improved* *improved a lot*

1. **Competence: Basic Math Workshop** **Competence limited to math skills as below**

•I am able to understand decimal notation

stayed the same *improved* *improved a lot*

•I am able to add whole numbers

stayed the same *improved* *improved a lot*

•I am able to add decimals

stayed the same *improved* *improved a lot*

•I am able to subtract whole numbers

stayed the same *improved* *improved a lot*

•I am able to subtract decimals

stayed the same *improved* *improved a lot*

•I am able to multiply whole nunbers

stayed the same *improved* *improved a lot*

•I am able to multiply decimals

stayed the same *improved* *improved a lot*

•I am able to divide whole numbers

stayed the same *improved* *improved a lot*

•I am able to divide decimals

stayed the same *improved* *improved a lot*

•I am able to change fractions to decimals

stayed the same *improved* *improved a lot*

•I am able to read graphs

stayed the same *improved* *improved a lot*

•I am able to graph

stayed the same *improved* *improved a lot*

•I am able to find averages

stayed the same *improved* *improved a lot*

•I am able to use calculator-addition/subtraction/multipication/division (With or without decimals)

stayed the same *improved* *improved a lot*

2. Competence ESP

Reading

•I need less translation from my native language into English

stayed the same   *improved*   *improved a lot*

•I am able to read signs and notices around the plant

stayed the same   *improved*   *improved a lot*

•I am able to identify an MPI

stayed the same   *improved*   *improved a lot*

•I am able to locate and use sections of MPI

stayed the same   *improved*   *improved a lot*

•I am able to understand Aerovox graphs

stayed the same   *improved*   *improved a lot*

Writing

•I am able to fill out forms

stayed the same   *improved*   *improved a lot*

•I am able to fill out time tickets

stayed the same   *improved*   *improved a lot*

•I am able to fill out inspection sheets (if applicable)

stayed the same   *improved*   *improved a lot*

Computation

•I am able to understand different math terms in English

stayed the same   *improved*   *improved a lot*

•I am able to do basic addition and subtraction

stayed the same   *improved*   *improved a lot*

•I am able to solve word problems

stayed the same   *improved*   *improved a lot*

•I am able to estimate answers

stayed the same   *improved*   *improved a lot*

3. Competence: GED
Reading

•I am able to use given or remembered ideas in a different context from the one provided

stayed the same *improved* *improved a lot*

•I am able to restate information

stayed the same *improved* *improved a lot*

•I am able to summarize ideas

stayed the same *improved* *improved a lot*

•I am able to identify ideas that are implied

stayed the same *improved* *improved a lot*

•I am able to read manufacturing process instructions

stayed the same *improved* *improved a lot*

•I am able to draw conclusions from articles

stayed the same *improved* *improved a lot*

•I am able to distinguish facts from opinions

stayed the same *improved* *improved a lot*

•I am able to distinguish a conclusion from supporting statements

stayed the same *improved* *improved a lot*

•I am able to distinguish cause and effect relationships

stayed the same *improved* *improved a lot*

•I am able to make judgments about the accuracy of information

stayed the same *improved* *improved a lot*

Writing

A . Writing Skills

•I can identify and correct sentence fragments

stayed the same *improved* *improved a lot*

•I can identify and correct run-on sentences

stayed the same *improved* *improved a lot*

•I can identify and correct comma splices

stayed the same *improved* *improved a lot*

•I can check subject/verb agreement

stayed the same *improved* *improved a lot*

•I can check verb tense agreement

stayed the same *improved* *improved a lot*

•I can correct capitalization

stayed the same *improved* *improved a lot*

•I can correct punctuation

stayed the same *improved* *improved a lot*

B. Writing an Essay

•I am able to form and state an opinion

stayed the same *improved* *improved a lot*

•I am able to support my opinion

stayed the same *improved* *improved a lot*

•I am able to form and state an explanation

stayed the same *improved* *improved a lot*

•I am able to back up my explanation

stayed the same *improved* *improved a lot*

•I am able to state a conclusion

stayed the same *improved* *improved a lot*

•I am able to write a clear essay

stayed the same *improved* *improved a lot*

•I am able to write a straightforward letter

stayed the same *improved* *improved a lot*

Computation

•I am able to read and solve word problems

stayed the same *improved* *improved a lot*

• I am able to read graphs and tables

stayed the same *improved* *improved a lot*

•I am able to use formulas for perimeter

stayed the same *improved* *improved a lot*

•I am able to use formulas for area

stayed the same *improved* *improved a lot*

•I am able to use formulas for volume

stayed the same *improved* *improved a lot*

•I am able to use formulas for circumference

stayed the same *improved* *improved a lot*

•I am able to use formulas for distance and cost

stayed the same *improved* *improved a lot*

•I am able to use ratio and proportion to solve word problems

stayed the same *improved* *improved a lot*

•I am able to understand probablility, mean, median

stayed the same *improved* *improved a lot*

•I am able to use basic algebra to solve word problems

stayed the same *improved* *improved a lot*

•I am able to use formula for finding the slope of a line

stayed the same *improved* *improved a lot*

•I am able to plot and find points on an x, y axis

stayed the same *improved* *improved a lot*

•I am able to use pythagorean relationship to solve hypotoneuse problems w/ triangles

stayed the same *improved* *improved a lot*

•I am able to understand angle relationships

stayed the same *improved* *improved a lot*

*I am able to measure angles of a triangle and solve similarity problems

stayed the same *improved* *improved a lot*

4. Competence Pre - ASE / ASE (Adult Education 2)

Reading

•I am able to answer T/F questions about work materials

stayed the same *improved* *improved a lot*

•I am able to answer T/F questions about local newspaper articles

stayed the same *improved* *improved a lot*

•I am able to answer multiple choice questions about work materials

stayed the same *improved* *improved a lot*

•I am able to answer multiple choice questions about articles from local newspapers

stayed the same *improved* *improved a lot*

•I am able to use context to work out the meanings of words

stayed the same *improved* *improved a lot*

•I am able to use some root words/prefixes or suffixes to work out meanings of words

stayed the same *improved* *improved a lot*

• am able to use a dictionary

stayed the same *improved* *improved a lot*

Writing

•I am able to capitalize

stayed the same *improved* *improved a lot*

•I am able to punctuate using capitals and periods

stayed the same *improved* *improved a lot*

•I am able to punctuate questions, commands and explanations

stayed the same *improved* *improved a lot*

•I am able to identify nouns

stayed the same *improved* *improved a lot*

•I am able to use pronouns correctly

stayed the same *improved* *improved a lot*

•I am able to use different verb times

stayed the same *improved* *improved a lot*

•I am able to make subject /verb agreement

stayed the same   *improved*   *improved a lot*

•I am able to identify sentence fragments

stayed the same   *improved*   *improved a lot*

•I am able to identify run- on sentences

stayed the same   *improved*   *improved a lot*

•I am able to identify comma splices

stayed the same   *improved*   *improved a lot*

•I am able to write clear sentences

stayed the same   *improved*   *improved a lot*

•I am able to combine sentences using connecting words

stayed the same   *improved*   *improved a lot*

•I am able to write a short summary

stayed the same   *improved*   *improved a lot*

•I am able to write a short paragraph

stayed the same   *improved*   *improved a lot*

Computation

•I am aware of all symbols defining operations

stayed the same   *improved*   *improved a lot*

•I am able to read and solve word problems in addition using whole numbers

stayed the same   *improved*   *improved a lot*

•I am able to read and solve word problems in subtraction using whole numbers

stayed the same   *improved*   *improved a lot*

•I am able to read and solve word problems in multipication using whole numbers

stayed the same   *improved*   *improved a lot*

•I am able to read and solve word problems in division using whole numbers

stayed the same   *improved*   *improved a lot*

•I am able to understand decimal notation

stayed the same   *improved*   *improved a lot*

•I am able to add decimals

stayed the same *improved* *improved a lot*

•I am able to subtract decimals

stayed the same *improved* *improved a lot*

•I am able to multiply decimals

stayed the same *improved* *improved a lot*

•I am able to divide decimals

stayed the same *improved* *improved a lot*

•I am able to read and solve word problems in addition using decimals

stayed the same *improved* *improved a lot*

•I am able to read and solve word problems in subtraction using decimals

stayed the same *improved* *improved a lot*

•I am able to read and solve word problems in multipication using decimals

stayed the same *improved* *improved a lot*

•I am able to read and solve word problems in division using decimals

stayed the same *improved* *improved a lot*

•I am able to add fractions

stayed the same *improved* *improved a lot*

•I am able to subtract fractions

stayed the same *improved* *improved a lot*

•I am able to multiply fractions

stayed the same *improved* *improved a lot*

•I am able to divide fractions

stayed the same *improved* *improved a lot*

•I can get information from graphs

stayed the same *improved* *improved a lot*

- I can get information from tables

stayed the same *improved* *improved a lot*

- I am able to plot an SPC chart accurately

stayed the same *improved* *improved a lot*

- I understand what to do when SPC readings are not within the tolerance

stayed the same *improved* *improved a lot*

Competence ABE (Adult Education 1)

Reading

•I can figure out the meaning of new words by reading the whole sentence and/or the whole paragraph

stayed the same *improved* *improved a lot*

•I can answer questions about what I have read

stayed the same *improved* *improved a lot*

•I have strategies for reading (ex. I can understand new words by looking at the whole sentence or paragraph .)

stayed the same *improved* *improved a lot*

•I know its most important that I understand the whole story and its OK if I don't understand a word or two

stayed the same *improved* *improved a lot*

•I have strategies for answering questions about a story. When I answer a question, I go back to the story to make sure I'm getting the right answer

stayed the same *improved* *improved a lot*

•I am sure that reading is a matter of practicing. The more I do--the better I get

stayed the same *improved* *improved a lot*

• I read more

stayed the same *improved* *improved a lot*

• I can understand bar graphs

stayed the same *improved* *improved a lot*

•I can read a US Map

stayed the same *improved* *improved a lot*

• I know about US geography

stayed the same *improved* *improved a lot*

Writing

•I know that writing is a matter of practice--the more I do it-the better I get

stayed the same *improved* *improved a lot*

•I can write sentences

stayed the same *improved* *improved a lot*

•I can organize my sentences

stayed the same *improved* *improved a lot*

•I name the most important idea first, then the second most important one etc

stayed the same *improved* *improved a lot*

•I can write a short summary

stayed the same *improved* *improved a lot*

•I can write a short paragraph (in response to a question)

stayed the same *improved* *improved a lot*

Computation (As for Pre-ASE-ASE or Adult Ed2)

•I am aware of all symbols defining operations

stayed the same *improved* *improved a lot*

•I am able to read and solve word problems in addition using whole numbers

stayed the same *improved* *improved a lot*

•I am able to read and solve word problems in subtraction using whole numbers

stayed the same *improved* *improved a lot*

•I am able to read and solve word problems in multipication using whole numbers

stayed the same *improved* *improved a lot*

•I am able to read and solve word problems in division using whole numbers

stayed the same *improved* *improved a lot*

•I am able to understand decimal notation

stayed the same *improved* *improved a lot*

•I am able to add decimals

stayed the same *improved* *improved a lot*

•I am able to subtract decimals

stayed the same *improved* *improved a lot*

•I am able to multiply decimals

stayed the same *improved* *improved a lot*

•I am able to divide decimals

stayed the same *improved* *improved a lot*

•I am able to read and solve word problems in addition using decimals

stayed the same *improved* *improved a lot*

•I am able to read and solve word problems in subtraction using decimals
stayed the same *improved* *improved a lot*

*I am able to read and solve word problems in multipication using decimals

stayed the same *improved* *improved a lot*

*I am able to read and solve word problems in division using decimals

stayed the same *improved* *improved a lot*

*I am able to add fractions

stayed the same *improved* *improved a lot*

*I am able to subtract fractions

stayed the same *improved* *improved a lot*

*I am able to multiply fractions

stayed the same *improved* *improved a lot*

*I am able to divide fractions

stayed the same *improved* *improved a lot*

*I can get information from graphs

stayed the same *improved* *improved a lot*

*I can get information from tables

stayed the same *improved* *improved a lot*

*I am able to plot an SPC chart accurately

stayed the same *improved* *improved a lot*

*I understand what to do when SPC readings are not within the tolerance

stayed the same *improved* *improved a lot*

Please complete the following sentences about classes you have taken

1. I liked best about the class that ____________________

2. The class helped me to ____________________

3. I was disappointed that the class didn't address____________________

4. In future I would like this class to ____________________

Name: ________________________ **Position: Department Head /Group leader**

Department:________________________

Date: __________

1. I currently have _____ employees enrolled in the Workplace Education Program

2. To date I have had ____ workers enrolled

3. I do/do not actively encourage workers to enroll in the program

4. I do/do not understand the workplace literacy program in place now

5. I do/do not keep track of the errors made and who made them when I check my daily production reports

6. When employees go to class I find that it interrupts my production

never seldom sometimes often

7. I do/do not believe that I should identify areas needing improvement of specific enrolled employees with the coordinator of the program

8. Please circle which alternative you believe that participation in the education program has proved for workers under your supervision

*Workers are not afraid to ask questions about things they don't understand

stayed the same improved improved a lot

*Workers understand directions

stayed the same improved improved a lot

*Workers figure out ways do things themselves

stayed the same improved improved a lot

*Workers discover and apply new/better ways to do things at work

stayed the same improved improved a lot

*Workers work well with co-workers

stayed the same improved improved a lot

*Workers are developing sense of team work and team identity

stayed the same improved improved a lot

*Workers can describe their jobs

stayed the same improved improved a lot

•Workers can relate their jobs to overall production of capacitors

stayed the same *improved* *improved a lot*

•Workers inspect parts of their equipment

stayed the same *improved* *improved a lot*

•Workers practice maintenance of their equipment

stayed the same *improved* *improved a lot*

•Workers practice cleanliness of their equipment/surroundings

stayed the same *improved* *improved a lot*

•Workers take safety precautions

stayed the same *improved* *improved a lot*

•Workers understand need for Quality Control

stayed the same *improved* *improved a lot*

•Workers understand the purpose of having an MPI

stayed the same *improved* *improved a lot*

•Workers can follow their MPI

stayed the same *improved* *improved a lot*

•Workers can follow MPIs from other sections

stayed the same *improved* *improved a lot*

•Workers can read graphs around the plant

stayed the same *improved* *improved a lot*

•Workers can construct a graph

stayed the same *improved* *improved a lot*

•Workers can understand SPC procedures in the plant

stayed the same *improved* *improved a lot*

•Workers could take part in SPC procedures if asked to do so

stayed the same *improved* *improved a lot*

•Workers understand Right to Know

stayed the same *improved* *improved a lot*

9. I think the program needs improvement in the following ways:

10. Any additional comments or ideas

Thankyou

Hampden Paper Company

CASE STUDY:
OUTCOME STUDY AT HAMPDEN PAPER COMPANY

Background: Hampden Paper Company, Holyoke

Hampden Papers is a small (180 workers), family-owned paper manufacturing company situated along the Connecticut River. As recently as fifteen years ago, flint stones were still gathered along the river's banks, then bevelled and used as components of flint machines. Flint machines passed reams of paper around giant rollers as the bevelled stone treated the surface of the paper, imparting shine and texture. The flint machines at Hampden Paper produced about 1500 lineal feet of paper per day-- the same amount that their new computerized, multi-function machine can now produce in a minute. This example highlights the technological changes which this company is undergoing and its need for workplace education. Limited-English-proficient (LEP) workers can no longer run the old machines with minimal instructions and cues from supervisors. As the work at Hampden Paper becomes more skilled and more customized, greater demands are made on workers to communicate, collaborate, problem solve, innovate, perform quality control, and perform more than just one job. Education is seen as a primary strategy for sustaining this massive change at Hampden Paper. The union at Hampden Paper is the Graphic Communications International Union, Local 4813.

At present, all levels of ABE/GED and ESL are offered on an individualized, by-appointment basis in the learning center (classroom). Students average 2-5 hours per week, and the teacher/coordinator is available for 25 hours per week. There are two 20-week cycles, and the learning center is open on a more limited basis in the summer. The classroom is on-site and used full-time as a learning center. Workers attend class on company time with full pay.

In addition to the instruction currently offered, a "certification" program will soon be developed. This will mean that workers can become certified to perform as many operations in the production process as they choose to learn by enrolling in -- and completing-- job-certification programs. Their pay will rise accordingly. In this company, education is a strategy for transforming the methods of production and for retaining a loyal workforce. As a result, recruitment and regular class attendance are critical.

From management's perspective, the "flexible" (that is, multi-skilled) workforce created through the certification program will enhance competitiveness and profitability by creating high-quality product in the least amount of time with the minimum amount of waste. From the worker's perspective, there is opportunity for mobility and pay increase, a more-creative and responsible relationship to the product being produced, and enhanced collaborative relationships with other workers. In addition, workers may realize benefits in relationships with family members and in other organizations or community/service groups. The union stands to establish a highly-skilled, well-organized workforce, which cannot be displaced by unskilled or lower-paid workers. This is workplace education defined as a classic win/win situation.

Description of the evaluation process:

The make-up of the evaluation team: The Hampden Paper evaluation team was composed of the president of the company; a supervisor; the vice president of the union, a student in the program, and two representatives of the education-provider agency, the International Language Institute (ILI). One of these ILI representatives is the instructor/on-site coordinator for the program; the other serves as program coordinator.

The process: The Hampden Paper team followed the ten-step process described in Section II of the report of the MWEI Cycle 4 Evaluation. All members of the team were active participants in the process, although the student representative is limited-English-proficient and found it difficult to keep up with the pace and complexity of the English-language-discussion. Most of the day-to-day work of designing and using the data-gathering instruments, and analyzing and presenting the data, was left in the hands of the program coordinator.

What was learned about the education program: See Section II, Step 8 of the report of the MWEI Cycle 4 Evaluation.for a summary of the Hampden Paper team's findings, and the attached report by the program coordinator.

What was learned about the evaluation process: The teacher/on site coordinator was on maternity leave for both the January workshop and the first team meeting. This meant that she had to catch up quickly -- and hopefully not be overwhelmed by the amount of work that fell to her -- by the time the team was ready to meet for the second time. The teacher picked up the work without missing a step and was key to conducting the rest of the evaluation. The supervisor in the Hampden Paper team played a particularly active role at the beginning of the study. He substantially revised the draft supervisor report which the consultant had submitted for review, and helped the team to clarify the issues that were important for the supervisors-- both in the questionnaire and in the data-gathering methods to be used. Unfortunately, this person came ill midway through the evaluation project and could not attend the final two team meetings.

The "ripple" value of convening an evaluation team with representatives of all the key players was highlighted at Hampden Paper. The team meetings allowed these players to discuss two important issues with the company president that they would not have had the opportunity to discuss otherwise: the lack of interest/support of some supervisors for the education program, and the long-term plans for a worker education/certification program tied to job mobility and pay increase.

Attached data-gathering instruments, summaries of findings, and related documents:

Data-gathering instruments:

- Questionnaire for ESL/ABE students
- Questionnaire for GED students
- Questionnaire for computer students
  - Each of these questionnaires contains questions on job specific skills, the ASTD/higher order skills, and competencies matched to the class.
- Questionnaire for Union Members
- Questionnaire for Supervisors

Summary of findings:

- Outcome Study Final Report

Outcomes Study
Hampden Papers, Inc.
Final Report
November 27, 1991

INTRODUCTION AND OVERVIEW

In June and July, 1991 a survey of workplace education students and their supervisors at Hampden Papers was conducted. Students were asked to rate their improvement in various areas of learning in the classroom, at work, at home, and in the community since enrolling in the Workplace Education Program. They were also asked about their union involvement as a result of participating in the program. Supervisors were asked about their attitude towards the classes, and the effect of the workplace program on production and worker skills.

Student and supervisor responses were entered in the classroom computer, then cross-tabulated by program (ABE,GED,Computer) and by department. First and second shift students were not separated. ABE students account for 9 of the 20 students surveyed, computer students for 6, and GED students for 5. Students were given the option of circling "pre" on each question, indicating that they had a skill before entering the program. This was intended to distinguish between students already skilled in an area, and those who showed no improvement in that area. Percentages used discount any answers of "pre" to ensure a clear representation of improvement.

FINDINGS: JOB-SPECIFIC SKILLS

1. General Math Skills. 40% of the responding supervisors note some improvement. 83% of ABE students note improvement (50% "a lot" and 33% "a little") in basic math, 85% in using percentages (42.8% "a lot" and 42.8% "a little"), and 71% in using fractions (42.8% " a lot" and 28.6% "a little"). 75% of GED students note improvement in using fractions, decimals and percents (25% "a lot" and 50% " a little").

2. Measurement Skills. Only 1 of the responding supervisors, or 16.6%, indicated an improvement in the measuring skills shown by students. Conversely, 100% of the ABE students (7 out of 7) not having the skill previously indicated an improvement in this area (42.9% "a lot" and 57% "a little"). None of the 9 responding students said they had the skill previously. 66% of GED students note

improvement, 33% " a lot" and 33% "a little". Supervisors were asked about **reading** measuring devices accurately while students were asked about **using** measurements, leaving room for a discrepancy in results.

3. Reading Production Tickets. 60% of the responding supervisors note some improvement in accuracy. 87.5% of ABE students note improvement, with only 1 person indicating "pre". 62.5% note a lot of improvement. GED and computer students were not asked this question.

4. Writing Accurate Reports. 28% of all supervisors note some improvement. 66.6% of ABE students note improvement, 44.4% "a lot". None of the students indicated "pre". This and reading production tickets are clearly skills that students believe they need work on, despite the fact that everyone has said during conferences with the teacher that they have no trouble with production tickets. The word "accurate" is ambiguous, leaving room for a discrepancy in answers. Computer and GED students were not asked this question.

5. Understanding Directions. 42.9% of supervisors note some improvement. 71.4% of ABE enrollees indicated a lot of improvement. Only 1 GED and 1 computer student note any improvement, the others showing a prior skill. It is to be expected that GED and computer students will have better communication skills than ABE students, a group which includes ESL students.

6. Communicating Needs to Supervisor. 50% of responding supervisors note some improvement, with 1, or 16.6%, noting a lot of improvement. This is the only time a supervisor answered "a lot" in this survey. 85.7% of all students note improvement, 28.6% "a lot" and 66.6% "a little". ABE students note no prior skill, whereas 40% of GED students and 66.6% of computer students indicated a prior skill. This is understandable as the self-confidence of people in these groups is likely to be higher.

7. Asking Questions Clearly. 40% of the supervisors note improvement, as did 75% of all students without a prior skill. The biggest improvement was in the ABE group.

8. Working Well With Others. 28.5% of supervisors note some improvement. 83.3% of all students report improvement, 66.6% noting a lot.

9. Solving Problems Independently. 1 supervisor note improvement (16.6%), while 92.9% of all students said they improved (57.1% "a lot"). The student question differed from the supervisor question: "I don't wait to be told what to do".

10. Offering Opinions and Ideas. 28.6% of supervisors and 85.7% of all students indicated improvement. Fewer students said they improved a lot, only 33.3% as compared to stronger improvement note previously. "Pre" responses were low, but increased with skill level. This would seem to be an area to focus on with students in all components of the program.

11. Understanding Role in Hampden Papers. 16.6% of responding supervisors indicated there was an improvement here. 78.6% of all students note improvement, 57.1% note a lot. 80% of students in the Fancy Department and 83% of those in the Receiving/Power Wind Department improved a lot.

OBSERVATIONS

The Receiving/Power Wind Department note a large improvement in the way workers communicate their needs on the job, and the most overall improvement of all departments.

The tendency of supervisors to report less improvement in skills surveyed may be explained by the fact that supervisors do not see discrete learning, rather overall competency. A student may have learned many of the steps involved in working with fractions, but may not yet be able to do the multiplication required for a certain job. The student would, therefore, see much more progress in fractions than would the supervisor. In addition, what students are doing in their class work may not always be directly related to the job they are doing at the time. Finally, the supervisors were not given the option of answering "pre", or "not applicable" for their questions. This may have skewed the results.

Findings of Production-related Supervisor Questions

-100% of the supervisors said they actively encourage enrollment in the workplace program, and that they understand the program in place at the time of the survey.
-66% keep track of errors made and who made them.
-The Receiving/Power Wind supervisors said their production was often disrupted by students coming to class. This follows from the fact that this department has the highest enrollment (9 out of 20).

-85% of the supervisors think they should identify areas needing improvement in their workers with the teacher.
-Areas of the program cited as needing improvement were:
  More job-specific work in the classroom.
  Find a way to keep students attending class.

-The supervisors said they had a total of 15 workers who they feel should enroll in the program, but couldn't at the time.
-One supervisor cited one of his workers as having notably improved reading skills and self-esteem.

FINDINGS: ASTD CATEGORIES (Questions not covered above.)

1. Like to learn. 85.7% of students without prior skills note improvement, 57.1% a lot and 28.6% a little. 100% of GED students without prior skill report improvement. Only 1 marked "pre". These students have clear short-term goals, and daily progress can be measured with the competency-based curriculum they follow.

2. Know where to get information. 85.7% of students without prior skill note improvement, 35.7% a lot and 50% a little. This is to be expected with the independent learning environment which has been created in the classroom.

3. Listen to my co-workers. GED and computer students show a prior skill. 75% of ABE students (there was only 1 "pre") note improvement.

4. Listen to family and friends. Again, GED and computer students show a prior skill. 87.5% of ABE students (only 1 "pre") note improvement, 62.5% a lot.

5. Think of better ways to do things at work. 66.6% of all students without this skill note a lot of improvement, and 20% note a little. Again, ABE students report the greatest improvement.

6. Try better ways to do things at work. 92.3 of all students note improvement, 61.5% a lot. This again can be understood considering the independence fostered in the classroom. This has an effect on self-esteem and initiative.

7. Value opinions and contributions. 91.6% of students without prior skill note improvement, 41.6% a lot. 100% of ABE and computer students without prior skill report improvement.

8. Support others' participation in the program. 88.8% of all students note improvement, 77.7% a lot. There was a "pre" of only 2, making this the largest reported improvement in the survey. 87.5% of the Receiving/Power Wind Department and 85.7% of the Fancy Department note a lot of improvement. These two departments have the largest enrollment, and perhaps the best comraderie. It is interesting to see that GED and computer students were

the most enthusiastic in their responses. No one answered "stayed the same", only 1 answered "improved a little", and there was only 1 "pre" in this group. As explained above, these two groups have more "easily" attainable short-term goals, which may generate more enthusiasm.

9. Support family and friends' efforts to learn. 81.3% of all students without prior skill report improvement, 75% a lot. 100% of GED students answer "a lot".

10. Understand long-term goals of Hampden Papers. 87.5% of all students note improvement, 56.3% a lot. 100% of the Shipping/Embossing Department, 100% of the Fancy Department (only 1 "pre"), and 87.5% of the Receiving/Power Wind Department report improvement.

11. Component-specific competencies. Students report overall improvement in **all** areas surveyed, math, reading and writing skills. ABE students note the biggest gain in most areas, and computer students report the least. Computer students also indicated "pre" most often in all areas. This is understandable considering the differing skill levels of each group.

    -At least **85%** of ABE students report **improvement in all but 2 areas of reading, writing and math.**
    -None of the ABE students and none of the GED students in 4 out of 5 skills indicated "pre" in writing skills. All need work in this area.
    -GED students report overall improvement except in social studies and science areas, where 3 out of 4 had a prior skill. -There was less improvement in GED math skills, especially in more advanced areas.
    -75% to 80% of ABE and GED students report improvement in solving word problems, reading tables and graphs, and in using measurement.
    -83% of computer students indicated improvement in applying programs and skills for job and home purposes.

FINDINGS: UNION MEMBER SURVEY

1. Awareness of union benefits. 55% note an increase. This increase was the same across departments, and slightly higher in the Color/Coating Department.

2. Desire to negotiate benefits on union contracts. 50% had an increased interest. This included 100% of Shipping/Embossing, 57% of the Fancy Department, and 66% of computer students. This would perhaps be higher at the end of a contract period, when workers are anticipating new negotiations.

3. Interest in becoming a union officer. 10% report an increase (in the Receiving/Power Wind Department **only)**, and 20% a decrease. This decrease may happen when workers enroll in the program as their time constraints and understanding of the complexities of union involvement increase.

4. Understanding union role in Workplace Education Program. 65% report an increase. **100% of the Fancy Department enrollees note an increase.**

SUGGESTIONS FOR FUTURE SURVEYS

-The wording of the questions needs to be the same for both supervisors and students to allow for more reliable cross-tabulation of responses.
-Supervisors need to have the option of answering "pre" or "NA", as did the students.
-Questions regarding job-specific skills need to be asked of all students, regardless of program enrollment. It may be possible to find an correlation between simple involvement in the workplace education program and improved skills on the job.
-Company and union representatives on the evaluation team suggested that the supervisors answer survey questions for **each** of their workers to get a clearer picture of the program's effect on the shop floor. Information can also be used to improve the curriculum.
-When the company has the capacity to measure scrap, the "pre" and "post" figures can be examined as a possible indicator of program effectiveness.
-It may also be helpful for supervisors to keep copies of employee reports from the beginning of their involvement in the program for comparison with later work, as additional evidence of program effectiveness.
-A more sophisticated statistical computer program will be used to analyze survey results in the future. This year's data may be retabulated using the new program.

The questionnaires will be rewritten with the above in mind and distributed in June to supervisors, current students and union members. As responses are tracked over time, results and insights will become more meaningful. The information gathered is expected to help in curriculum modification, as well as in judging overall program effectiveness for funder, company management, and recruitment purposes.

CASE STUDY:
OUTCOME STUDY AT HAMPDEN PAPER COMPANY

Background: Hampden Paper Company, Holyoke
Hampden Papers is a small (180 workers), family owned paper manufacturing company situated along the Connecticut River. As recently as fifteen years ago, flint stones were still harvested along the river's banks, then bevelled and used as components of flint machines. Flint machines passed reams of paper around giant rollers as the bevelled stone treated the surface of the paper, imparting shine and texture. The flint machines at Hampden Paper produced about 1500 lineal feet of paper per day-- the same amount that their new computerized, multi-function machine can now produce in a minute. This example highlights the technological changes which this company is undergoing and its need for workplace education. Limited English proficient (LEP) workers can no longer run the old machines with minimal instructions and cues from supervisors. As the work at Hampden Paper becomes more skilled and more customized, greater demands are made on workers to communicate, collaborate, problem solve, innovate, perform quality control, and perform more than just one job. Education.is seen as a primary strategy for sustaining this massive change at Hampden Paper. The union at Hampden Pare is the

At the present time, all levels of ABE/GED and ESL are offered on an individualized, by appointment basis in the learning center (classroom). Students average 2-5 hours per week, and the teacher coordinator is available for 25 hours per week. There are two 20 week cycles, and the learning center is open on a more limited basis in the summer. The classroom is on-site and used full-time as a learning center. Workers attend class on company time with full pay.

In addition to the instruction currently offered, a "certification" program will soon be developed. This will mean that workers can become certified to perform as many operations in the production process as they choose to learn through enrolling in -- and completing-- job certification programs. Their pay will rise accordingly. In this company, education will be a strategy for transforming the methods of production and for retaining a loyal workforce. As a result, recruitment into and regular attendance in classes critical.

From management's perspective, the "flexible" (i.e. multi-skilled) workforce created through the certification program will enhance competitiveness and profitability by creating high quality product in the least amount of time with the minimum amount of waste. From the worker's perspective, there is opportunity for mobility and pay increase, a more creative and responsible relationship to the product being produced, and enhanced, collaborative relationships with other workers. In addition, workers may realize benefits in relationships with family members and in other organizations or community/service groups. The union stands to establish a highly skilled, well organized workforce, which cannot be displaced by unskilled or lower paid workers. This is workplace education defined as a classic win/win situation

Description of the evaluation process:

The make-up of the evaluation team: The Hampden Paper evaluation team was composed of the President of the company; a supervisor; the Vice President of the union, a student in the program, and two representatives of the education-provider agency, the International Language Institute. One of these representatives of the International Language Institute is the instructor/on-site coordinator for the program; the other serves as program coordinator.

The process: The Hampden Paper team followed the evaluation process described in Section II of this report. All members of the team were active participants in the process, although the student representative is limited-English proficient and found it difficult to keep up with the pace and complexity of the English language discussion. Most of the day-to-day work of designing and using the data-gathering instruments, and analyzing and presenting the data, was left in the hands of the program coordinator and his fellow instructor.

What was learned about the education program: See Section II, Step 7 of this report for summary of the Hampden Paper team's findings.

What was learned about the evaluation process: The teacher/on site coordinator was on maternity leave for both the January workshop and the first team meeting. This meant that she had to catch up quickly and hopefully not be overwhelmed by the amount of work that fell to her, by the time the team was ready to meet for the second time. The teacher picked up the work without missing a step and was key to conducting the rest of the evaluation. The supervisor in the Hampden paper team played a particularly active role. He substantially revised the draft supervisor report which the consultant had submitted for review, and helped the team to clarify the issues that were important for the supervisors-- both in the questionnaire and in the data gathering methods to be used. The "ripple" value of convening an evaluation team with representatives of all the key players was highlighted at Hampden Paper. The team meetings allowed these players to discuss two important issues with the company President that they would not have had the opportunity to discuss otherwise: the lack of interest/support of some supervisors in the worklace education program, and the long term plans for a worker education/certification program tied to job mobility and pay increase.

Data-gathering instruments and related documents:

Data-gathering instruments:

- -- Questionnaire for ESL/ABE students
- -- Questionnaire for GED students
- -- Questionnaire for computer students
  - • Each of these questionnaires contains questions on job specific skills, the ASTD/higher order skills, and competencies matched to the class.
- -- Questionnaire for Union Members
- -- Questionnaire for Supervisors

Summary of findings:
-- Outcome Study Preliminary Oral Report, September 18, 1991

Observations Checklist for Supervisors

Please answer the following questions for the workers you have who **are or have been** enrolled in the Workplace Education Program. You do not need to put your name on this form.

1. I currently have ___ employees enrolled in the Workplace Education Program.
2. I do/do not actively encourage workers to enroll in the program.
3. I do/do not understand the workplace education program in place now.
4. I do/do not keep track of the errors made and who made them when I check my daily production reports.
5. When employees go to class I find that it interrupts my production.
   never seldom sometimes often
6. I do/do not believe that I should identify areas needing improvement of specific enrolled employees with the teacher of the program.
7. Please indicate if you believe that participation in the Workplace Education Program has improved for workers under your supervision.
   - a. math skills
     stayed the same improved improved a lot
   - b. read production tickets accurately
     stayed the same improved improved a lot
   - c. read measuring devices accurately
     stayed the same improved
   - d. write accurate reports
     stayed the same improved improved a lot
   - e. understand directions
     stayed the same improved improved a lot
   - f. communicate needs to you
     stayed the same improved improved a lot
   - g. ask questions clearly/without hesitation
     stayed the same improved improved a lot

h. need less translation/clarification
stayed the same improved improved a lot

i. work well with others
stayed the same improved improved a lot

j. solve problems independently
stayed the same improved improved a lot

k. offer opinions and ideas
stayed the same improved improved a lot

l. understand role in Hampden Papers
stayed the same improved improved a lot

8. I think the program needs improvement in the following areas:

9. Is there anything specific you want to say about a particular worker?

10. I have approximately ___ employees in my department I feel should enroll in the program, but at this time are either unable or unwilling to do so.

11. Any additional comments or ideas:

Checklist for Union Members/Stewards

Do you think that participation in your workplace education program has changed the following for union members? Please circle **decreased, increased or stayed the same** after each item.

1. Awareness of range of benefits offered through the union

   decreased increased stayed the same

2. Identifying problems on shop floor as union concerns

   decreased increased stayed the same

3. Understanding the grievance procedure

   decreased increased stayed the same

4. Interest in becoming a steward or union officer

   decreased increased stayed the same

5. Desire to negotiate benefits on union contracts

   decreased increased stayed the same

6. Understanding the union role in creating and supporting your workplace education program

   decreased increased stayed the same

7. Understanding the terms of your union contract (as reflected in the curriculum or from other sources)

   decreased increased stayed the same

8. Anything else that has changed? Please specify__________

   --

   decreased increased stayed the same

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Self-Report Checklist
Workplace Education Program
GED Students

Do you think that participation in your workplace education program has changed the following for you? **Please circle one:**

pre-you had the skill before entering the program
1-stayed the same
2-increased a little
3-increased a lot

1. Foundation - knowing how to learn

a. I like to learn.
pre 1 2 3

b. I'm not afraid to ask questions about something I don't know.
pre 1 2 3

c. I know where to go for information to answer my questions (to a book, a person, etc.).
pre 1 2 3

2. Competence - reading, writing and computation

READING SKILLS

a. I can understand the main idea and supporting details.
pre 1 2 3

b. I can make inferences from readings (read between the lines).
pre 1 2 3

c. I can analyze and apply new ideas from a reading.
pre 1 2 3

d. I can understand social studies readings.
pre 1 2 3

e. I can understand science readings.
pre 1 2 3

d. I can understand poetry, drama, fiction and non-fiction.
pre 1 2 3

WRITING SKILLS

a. I can understand and use good sentence structure.
pre 1 2 3

b. I can understand and use good grammar.
pre 1 2 3

c. I can use correct spelling, punctuation and capitalization.
pre 1 2 3

d. I can write a clear and well-organized paragraph.
pre 1 2 3

e. I can write a clear and well-organized essay.
pre 1 2 3

MATH SKILLS
a. I can use fractions, decimals and percents.
pre 1 2 3

b. I can use ratios, proportions and probability.
pre 1 2 3

c. I can solve geometry problems.
pre 1 2 3

d. I can solve algebra problems.
pre 1 2 3

e. I can solve word problems.
pre 1 2 3

f. I can read tables and graphs.
pre 1 2 3

g. I can use liquid, dry and linear measurement.
pre 1 2 3

h. I can use exponents, roots and scientific notation.
pre 1 2 3

3. Communication - listening and speaking
a. I can understand directions.
pre 1 2 3

b. I listen to my co-workers.
pre 1 2 3

c. I listen to my family members and friends.
pre 1 2 3

d. I can ask questions clearly.
pre 1 2 3

for ESL students
e. I need less repeating or translation.
pre 1 2 3

4. Adaptability - creative thinking and problem solving
a. I don't wait for someone else to tell me what to do.
pre 1 2 3

b. I **think about** new or better ways to do things at work.
pre 1 2 3

c. I **try** new or better ways to do things at work.
pre 1 2 3

5. **Personal Management** - self-esteem, goal setting, motivation, personal and career development
a. I value my opinions and contributions.
pre 1 2 3

b. I offer my opinions to others.
pre 1 2 3

c. I plan ahead in my personal life.
pre 1 2 3

d. I plan ahead at work.
pre 1 2 3

e. I am comfortable working alone.
pre 1 2 3

f. I am a more active member of my community (church, union, community center).
pre 1 2 3

6. **Group Effectiveness** - interpersonal skills, negotiation and teamwork
a. I work well with members of my work station.
pre 1 2 3

b. I am willing to talk about my needs and the needs of my group with my supervisor.
pre 1 2 3

c. I support others' efforts to participate in the workplace education program.
pre 1 2 3

d. I support family and friends' efforts to learn.
pre 1 2 3

7. **Influence**
a. I understand the relationship between the parts of the work process I do and the whole paper production process.
pre 1 2 3

b. I understand the long term goals of Hampden Papers, Inc. and the necessary role that education plays in reaching those goals.
pre 1 2 3

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Self-Report Checklist
Workplace Education Program
Computer Students

Do you think that participation in your workplace education program has changed the following for you? **Please circle one:**

pre-you had the skill before entering the program
1-stayed the same
2-increased a little
3-increased a lot

1. **Foundation** - knowing how to learn

a. I like to learn.
pre 1 2 3

b. I'm not afraid to ask questions about something I don't know.
pre 1 2 3

c. I know where to go for information to answer my questions (to a book, a person, etc.).
pre 1 2 3

2. **Competence**

a. I can use Professional Write for writing and editing.
pre 1 2 3

b. I can use Professional Write for forms and page design.
pre 1 2 3

c. I can use Professional File to make simple reports.
pre 1 2 3

d. I can use Professional File to make calculations.
pre 1 2 3

e. I can use these programs for practical job or home purposes.
pre 1 2 3

3. **Communication** - listening and speaking

a. I can understand directions.
pre 1 2 3

b. I listen to my co-workers.
pre 1 2 3

c. I listen to my family members and friends.
pre 1 2 3

d. I can ask questions clearly.
pre 1 2 3

for ESL students
e. I need less repeating or translation.
pre 1 2 3

4. Adaptability - creative thinking and problem solving
a. I don't wait for someone else to tell me what to do.
pre 1 2 3

b. I **think about** new or better ways to do things at work.
pre 1 2 3

c. I **try** new or better ways to do things at work.
pre 1 2 3

5. Personal Management - self-esteem, goal setting, motivation, personal and career development

a. I value my opinions and contributions.
pre 1 2 3

b. I offer my opinions to others.
pre 1 2 3

c. I plan ahead in my personal life.
pre 1 2 3

d. I plan ahead at work.
pre 1 2 3

e. I am comfortable working alone.
pre 1 2 3

f. I am a more active member of my community (church, union, community center).
pre 1 2 3

6. Group Effectiveness - interpersonal skills, negotiation and teamwork
a. I work well with members of my work station.
pre 1 2 3

b. I am willing to talk about my needs and the needs of my group with my supervisor.
pre 1 2 3

c. I support others' efforts to participate in the workplace education program.
pre 1 2 3

d. I support family and friends' efforts to learn.

pre 1 2 3

7. Influence

a. I understand the relationship between the parts of the work process I do and the whole paper production process.

pre 1 2 3

b. I understand the long term goals of Hampden Papers, Inc. and the necessary role that education plays in reaching those goals.

pre 1 2 3

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Self-Report Checklist
Workplace Education Program
ABE Students

Do you think that participation in your workplace education program has changed the following for you? **Please circle one:**

pre-you had the skill before entering the program
1-stayed the same
2-increased a little
3-increased a lot

1. Foundation - knowing how to learn

a. I like to learn.
pre 1 2 3

b. I'm not afraid to ask questions about something I don't know.
pre 1 2 3

c. I know where to go for information to answer my questions (to a book, a person, etc.).
pre 1 2 3

2. Competence - reading, writing and computation

READING SKILLS

a. I can read a production ticket.
pre 1 2 3

b. I can read graphs, charts, grids and maps.
pre 1 2 3

c. I can understand the main idea and details of what I am reading.
pre 1 2 3

d. I can make inferences from what I am reading (read between the lines).
pre 1 2 3

e. I have built up my vocabulary.
pre 1 2 3

WRITING SKILLS

a. I can complete job tickets and reports.
pre 1 2 3

b. I can use the word processor.
pre 1 2 3

c. I can express my ideas clearly in written form (words, sentences, paragraphs, letters, essays) specify which _____

____

pre 1 2 3

MATH SKILLS

a. I can do basic addition, subtraction, multiplication, and division.

pre 1 2 3

b. I can figure simple percentages.

pre 1 2 3

c. I can add and subtract simple fractions.

pre 1 2 3

d. I can use measurements.

pre 1 2 3

3. **Communication** - listening and speaking

a. I can understand directions.

pre 1 2 3

b. I listen to my co-workers.

pre 1 2 3

c. I listen to my family members and friends.

pre 1 2 3

d. I can ask questions clearly.

pre 1 2 3

for ESL students

e. I need less repeating or translation.

pre 1 2 3

4. **Adaptability** - creative thinking and problem solving

a. I don't wait for someone else to tell me what to do.

pre 1 2 3

b. I **think about** new or better ways to do things at work.

pre 1 2 3

c. I **try** new or better ways to do things at work.

pre 1 2 3

GRAND TOTAL
821950

5. **Personal Management** - self-esteem, goal setting, motivation, personal and career development

a. I value my opinions and contributions.
pre 1 2 3

b. I offer my opinions to others.
pre 1 2 3

c. I plan ahead in my personal life.
pre 1 2 3

d. I plan ahead at work.
pre 1 2 3

e. I am comfortable working alone.
pre 1 2 3

f. I am a more active member of my community (church, union, community center).
pre 1 2 3

6. **Group Effectiveness** - interpersonal skills, negotiation and teamwork
a. I work well with members of my work station.
pre 1 2 3

b. I am willing to talk about my needs and the needs of my group with my supervisor.
pre 1 2 3

c. I support others' efforts to participate in the workplace education program.
pre 1 2 3

d. I support family and friends' efforts to learn.
pre 1 2 3

7. **Influence**
a. I understand the relationship between the parts of the work process I do and the whole paper production process.
pre 1 2 3

b. I understand the long term goals of Hampden Papers, Inc. and the necessary role that education plays in reaching those goals.
pre 1 2 3

South Cove Manor Nursing Home

CASE STUDY:
OUTCOME STUDY AT SOUTH COVE MANOR

Background: South Cove Manor Nursing Home, Boston

The "product" which staff produce in this one-of-a- kind nursing home for elderly Chinese people in the Commonwealth is quality patient care. Differences in culture and language between mainly Chinese entry-level workers and nurses' aides and native-English-speaking supervisory staff can compromise quality of patient care in serious ways. For example, the seemingly small error of placing a salted or sugared food item on a food tray for a patient with restricted dietary needs may cause health problems. The on-site ESL program facilitates communication between English-speaking licensed staff (R.N.'s and M.D.'s) and Chinese-speaking nurses aides and other entry-level workers, thereby improving the quality of patient care.

The South Cove Manor Nursing Home (SCM) is a private, non-profit nursing home located on the outskirts of Boston's Chinatown. Members of the Chinese-American community worked for over ten years to make the dream of a long-term-care facility for elderly Chinese a reality and take pride in the fact that it is one of only three nursing homes in the nation oriented to the social, dietary, and medical needs of the elderly Chinese community. Approximately 70 percent of the residents are Chinese. As the general population ages, nursing homes increase in number, requiring more licensed and unlicensed staff to work in them. At the same time, the nation and the State of Massachusetts are facing a shortage of nursing personnel; and the demographics of people likely to find employment in entry-level nursing home jobs are also changing. They are likely to be recent immigrants to the United States and limited-English-proficient.

Like other nursing homes throughout the State of Massachusetts, South Cove Manor faces problems with recruitment of licensed staff-- especially R.N.'s-- and with retention of unlicensed staff. But these problems are compounded by the bilingual needs of the agency. In order to provide quality care to its residents, the agency needs nurses who are bilingual in Chinese and English. They are in especially short supply. The agency also needs unlicensed staff to work in the dietary and laundry departments and to work as nurses' aids, who can speak English well enough to both take directions in English from English-speaking supervisory staff and interact with English-speaking residents. Entry level workers are primarily but not exclusively Chinese. Some are Haitian and speak French.

An on-site ESL program addresses these problems in several ways. It:

1.) Creates an environment of acceptance of English as a common language within the bicultural setting.
2.) Creates a work environment where education is valued and made available in the service of quality patient care.

3.) Helps nurses' aides who are Chinese speaking work toward becoming licensed as L.P.N.'s and R.N.'s, thereby increasing the pool of licensed, bilingual nurses in the long term.
4.) Increases the written and oral English language skills of unlicensed staff, thereby reducing dependence on translators and interpreters.
5.) Creates an opportunity for underemployed staff to develop English language skills and move up the career ladder at South Cove Manor if possible, or elsewhere.

The South Cove Manor ESL program offers ESL instruction a the beginner and intermediate levels. There are 4 beginner classes averaging nine students each, which meet six hours a week; and an intermediate class with nine students, which meets two hours a week. There are two 22 week instructional cycles per year. Classes are taught in the conference room near the front entrance on the first floor, and in the physical therapy room. They are taught by the on-site coordinator/Instructor and instructor. In a addition to classes, an average of ten workshops are offered per year, many focusing on career development. Seven students also chose to participate in a self instructional VESL program, and 15 students are partnered with volunteer "buddies" who assist them with language learning. The ESL program does not provide release time.

Description of the evaluation process:

The make-up of the evaluation team: The SCM evaluation team was composed of the head administrator of the nursing home; two high-level representatives of the management company which operate the home; a nurse/supervisor; and two representatives of the education-provider agency, the Chinese American Civic Association. (The CACA representatives were both instructors in the program and one of them also served as education program coordinator.) Early in the process, the instructors also tried to include students as active participants in the team. However, this was not encouraged by the SCM management on the grounds that it took students away from their jobs.

The process: The SCM team followed the ten-step process outlined in Section II of the report of the MWEI Cycle 4 Evaluation. Most of the day-to-day work of designing and using the data-gathering instruments, and analyzing and presenting the data, was left in the hands of the program coordinator and his fellow instructor.

What was learned about the education program: See Section II, Step 8 of the report of the MWEI Cycle 4 Evaluation.for a summary of the SCM team's findings, and the attached report by the program coordinator.

What was learned about the evaluation process: The SCM team -- led by the coordinator and his fellow instructor -- was outstanding in the way it clarified the outcomes it wanted to focus on, designed and used its data-gathering instruments, and then analyzed the resulting data. However, the team's effort was limited by its tendency to place most of the responsibility for the process on the shoulders of the education providers. Despite the high quality of the evaluation work being done, as the project drew to a close it appeared that management had lost interest in participating in the study and using the information produced. This was puzzling because SCM had initially expressed clear interest in producing "quantitative data" about the impact of the program on the quality of patient care. Although it was not clear what SCM might do with the work done in the project, it was clear that the education provider -- the Chinese American Civic Association -- intended to make active use of the experience. CACA planned to implement a similar outcome study process in the other education programs it operates in Boston's Chinese community.

Attached data-gathering instruments, summaries of findings, and related documents:

Data-gathering instruments:
-- Simulations
-- Flow Sheet Exercise
-- Questionnaire for Supervisory and Licensed Staff
-- Resident Interview
-- Questionnaire for Nursing Assistants

Summary of findings:
-- Outcome Study Preliminary Report

Has SCM changed the way it operates in order to most effectively make use of the NAs' skills ?

- According to NAs, 50 % of the English speaking supervisory and licensed staff pay more attention to their reports.
- NAs' reports have enabled the DON in 66.6 % of all cases to adjust the patient care plan as necessary.
- ______________________ theEnglish speaking licensed staff in 50 % ____________ ________.
- ______________________ the bilingual supervisors in 91.6 % __________________ ________.
- In 25 % of all reports submitted by students to the DON, patient care adjustments have led to improvements in the resident's condition.
- In 66.6 % _________ the English speaking nurses, ___________________________ ________.
- In 100 % _________ the bilingual supervisors, ______________________________ ________.

Has SCM become less dependent on interpreters and translations ?

- 66.6 % of the NAs feel that English speaking staff don't need an interpreter (anymore) to communicate with them.
- The DON has become less depenedent on interpreting when interacting with 41.6 % of the NAs.
- English speaking nurses feel they have become less dependent on interpreting in 66.6 % of the cases.
- The DON feels she does not need an interpreter in 50 % of all cases.
- English speaking nurses say they don't need an interpreter in 66.6 % of all cases.
- Bilingual supervisors say they interpret less for NAs in 91.6 % of all cases and that they depend less on interpreting to give instruction in 58.3 % of all cases.

Have NAs benefitted from the program in ways not directly related to their job ?

- The general proficiency of ALL participants has developed considerably.

Outcome Study
South Cove Manor Workplace Education Program
July 25, 1991

The Questions

Learning of Participants

Do participants better master the skills that are critical to the delivery of patient care of high quality ?

Job Performance or Transfer of Learning to the Job

Has the number of positive resident/nursing assistant interactions increased ? Has the number of misunderstandings between residents and nursing assistants decreased ?

Do nursing assistants properly use English to report changes in the condition of residents ?

Do nursing assistants properly read and fill out work-related documents in English ?

Organizational Performance or Changes in the Behavior of the Larger Organization

Has the organization (i.e. South Cove Manor) changed (e.g. quality of care) ?

Has the organization itself changed the way it operates in order to most effectively make use of nursing assistants' skills ?

Personal Development of Nursing Assistants

Have nursing assistants benefitted from the ESOL program in ways not directly related to their jobs ?

The Instruments

- **a series of classroom-based simulations of job tasks** that require the use of those English skills that are critical to the quality of patient care
- **a classroom-based flow sheet exercise** that requires participants to read an English only flow sheet and to enter information on completion of tasks
- **an interview with residents**
- **a survey given to English speaking licensed, supervisory, and training staff**
- **a survey given to participants**

- a standardized language proficiency test (i.e. BEST-test)

Outcome Study
South Cove Manor Workplace Education Program
July 25, 1991

Participant Profile

The evaluation team decided to focus on those participants who had been in the program the longest. All participants in the study were nursing assistants.

Gender

Male	1
Female	11

Age

36	1
37	1
38	1
43	1
46	1
50	1
51	2
52	2
53	1
61	1

Mean Age= 47.5

Ethnic Background and Gender

	Male	Female
Asian	1	10
Haitian	0	1

Mother Tongue

Cantonese	11
French Creole	1

Educational Level

Level 1	2
Level 2	3
Level 3	7

1= elementary or less
2= high school or equivalent in vocational training
3= higher education

Shifts

7-3	8
3-11	4
11-7	0

Floor

2 nd floor	7
3 rd floor	5

Hours of Instruction

84	1
148	1
218	1
238	1
255	1
266	1
318	1
372	1
392	1
440	1
456	1

Average = 292.41

Country and Setting of Origin

China (main land)	10	Rural	0
Hong Kong	1	Metropolitan	8
Haiti	1	Suburban	4

Length of Employment

- 1 year	0
1-2 yrs.	3
2-3 yrs.	5
3-4 yrs.	1
4-5 yrs.	0
+ 5 yrs.	3

Previous or concurrent ESOL learning experience

Yes	2
No	10

Bilingualism

Cantonese/Mandarin	9

Resident Profiles

Residents were selected by the case-mix nurse on the evaluation team. Their mental condition and their willingness to participate were taken into account. Seven residents provided information about the nursing assistants in the outcome study. All of them interacted frequently with participants and had been at the nursing home for a while.

Gender

Male	0
Female	7

Floor

2 nd floor	4
3 rd floor	3

Bilingualism per floor

	Bilingual (English and Cantonese)	Monolingual (English)
2 nd floor	0	4
3 rd floor	1	2

Supervisory and Licensed Staff Profiles

Initially ten supervisory and licensed staff were chosen. Eight participated eventually.

Gender

Male	1
Female	7

Status

DON	1
Case-Mix Nurse	1
Supervisor	2
LPN/RN	3
SDC	1

Mother Tongue

English	5
Other	3

Bilingualism (English and Mandarin)

Bilingual	3
Not bilingual	5

Learning of Participants

Do participants master the skills that are critical to the delivery of patient care of high quality ?

Methodology

1. Identifying key competencies or skills:

Participants in the program, supervisors, nurses, and the staff development coordinator were asked to identify those functional uses of English that contribute directly to the quality of patient care. Their suggestions were used to compile an inventory. After that, participants, nurses, and supervisors indicated which uses of English they perceived as critical. Next, the inventory was compared with the language requirements specified in the skills section of the National Nursing Assistant Examination. The correspondance was almost one-to-one.

2. Designing Simulations and Performance Standards:

For each of the critical skills, a classroom-based simulation was designed. If possible, the actual tasks were performed. Three standards of performance were developed to describe the participants' peformance.

1 = the participant does not know how to use English for this purpose

2 = the participant has developed some skills but the use of English is minimal. The oral communication is not always comprehensible or successful. Single word sentences are overused. Uses of reading, writing, and numeracy are still incomplete or inaccurate. The style and register of language is still be inappropriate to the function. Bodylanguage is not always comprehensible.

3 = the participant has developed the skills necessary to perform the function. Communication is successful and comprehensible but not necessarily grammatically correct.

Findings

Individual Achievement

	% of competencies attained		
	3	2	1
Participant			
1	86.6	13.4	
2	73.3	26.7	
3	86.6	13.4	
4	80.0	20.0	
5	50.0	30.0	20.0
6	56.6	43.4	
7	66.6	30.1	3.3
8	60.0	36.7	3.3
9	70.0	26.7	3.3
10	83.3	13.4	3.3
11	70.0	16.7	13.3
12	73.3	13.4	13.3

Average % of competencies attained: 71.35

Group Achievement

	% of participants who attained competencies
Competencies	3
1	100
2	83.3
3	91.6
4	83.3
5	91.6
6	58.3
7	50
8	41.6
9	33.3
10	75
11	83.3
12	41.6
13	41.6
14	75
15	100
16	41.6
17	66.6
18	100
19	75
20	100
21	25
22	58.3
23	33.3
24	50
25	91.6
26	100
27	83.3
28	91.6
29	83.3
30	91.6

Job Performance or Transfer of Learning to the Job

Has the number of positive resident/nursing assistant interactions increased ?

Methodology

1. The perspective of residents was solicited by including these questions in the resident interview guide:

- Does the nursing assistant speak with you during bathing, dressing, eating, toileting, or walking ?
- Does he/she explain what he/she will be doing with you ?
- Has talking with him/her

○ gotten better ○ gotten worse ○ remained the same

2. Nursing assistants self-assessed their interactions by rating their skills to communicate with residents. Positive interactions were inferred from the language requirements specified in the skills section of the National Nursing Assistant Examination. Interactions included:

1- knock/ask for permission to enter
2- greet the resident using his/her preferred form of address
3- say name and job
4- offer help and services
5- say what will happen/state reason for coming
6- explain procedures
7- instruct the resident speaking clearly and slowly
8- ask about toileting needs
9- encourage the resident to eat, exercise, and participate in activities
10- indicate lack of understanding
11- apologize if necessary
12- ask for help
13- end a conversation inabrubtly
14- give warnings in case of danger
15- respond to requests, complaints, and concerns
16- ask for feedback (e.g. about comfort, clothing preferences, water and food temperature, order of feeding, etc.)

Participants used this rating scale:

1 = I don't know how to
2 = I can but I don't
3 = I do somewhat
4 = I do fine

Findings

Resident perspective

Participant	Do interactions take place ?	Are procedures explained ?
1	yes	yes
2*	yes	yes
3*	yes	yes
4	yes	yes
5	yes	sometimes
6	?	?
7	yes	yes
8	yes	yes
9	yes	yes
10	yes	yes
11	yes	yes
12	yes	yes
	Yes = 91.6 %	Yes = 83.3 % Sometimes = 8.3 %

Have positive interactions increased/improved, decreased/gotten worse, or remained the same ?

Participant	Increased	Decreased	Remained the same	Don't know
1				yes
2*	yes			
3*	yes			
4	yes			
5				yes
6	yes			
7		yes		
8	yes			
9	yes			
10	yes			
11	yes			
12			yes	

Increased	66.6 %
Decreased	8.3 %
Unchanged	8.3 %
Don't know	16.8 %

Participant perspective

Individually

Participant	% Positive interactions NA involves in				
	4	3	2	1	NA
1	93.75	6.25			
2	68.75	31.25			
3	75.00	12.50			12.50
4	100.00				
5	43.75	56.25			
6	68.75	18.75	12.50		
7	68.75	12.50	12.50	6.25	
8	100.00				
9	18.75	50.00	31.25		
10	31.25	62.50	6.25		
11	6.25	56.25	37.50		
12	18.75	68.75	12.50		
Average	57.81				

Has the number of positive interactions increased ?

Group

Interaction	% of participants/skill level				
	4	3	2	1	NA
1	50.00	16.66	33.33		
2	91.66	8.33			
3	66.66	33.33			
4	50.00	50.00			
5	66.66	33.33			
6	25.00	58.33	8.33	8.33	
7	41.66	50.00	8.33		
8	83.33	16.66			
9	66.66	33.33			
10	66.66	25.00	8.33		
11	66.66	33.33			
12	50.00	33.33	8.33		8.33
13	41.66	33.33	16.66	8.33	
14	66.66	25.00	8.33		
15	25.00	33.33	16.66	16.66	8.33
16	66.66	16.66	8.33	8.33	

Has the number of misunderstandings decreased ?

Resident Perspective

- Does the resident understand the nursing assistant ?
- Does the nursing assistant understand the resident ?

Participant	Understands NA ?	NA understands resident ?
1	well	well
2	well	a little
3	well	well
4	well	not always
5	well	well
6	well	well
7	well	well
8	well	well
9	sometimes	well
10	well	NA
11	well	well
12	well	well
Well	91.6%	75%

Participant perspective

- Do misunderstandings take place ?
- Has the number decreased, increased, or remained about the same ?

Participant	Take place ?	Decreased ?	Increased ?	Remained the same ?
1	no	yes		
2	no	yes		
3	no	yes		
4	no	yes		
5	no	yes		
6	no	yes		
7	no	NA		
8	no			yes
9	sometimes	yes		
10	yes	NA		
11	yes			yes
12	yes	yes		
	66.6% (no)	66.6%		16.6%

Job Performance or Transfer of Learning to the Job

Do nursing assistants properly use English to report changes in the condition of residents ?

Findings

Resident Perspective

Participant	Does he/she relay messages/report changes ?
1	yes
2*	yes
3*	?
4	yes
5	I don't know
6	yes
7	?
8	yes
9	yes
10	yes
11	yes
12	I always report directly

Yes = 66.6 %

Perspective of licensed and supervisory staff

Participant	Does he/she report to you ?			
	DON	Nurses	SDC	Supervisor
1	yes	yes	yes	yes
2	yes	yes	yes*	yes
3	yes	yes	yes*	yes*
4	yes	yes	yes*	yes*
5	yes	yes	yes*	yes*
6	yes	yes to some	yes*	yes*
7	yes	yes	NA	yes*
8	yes	NA	yes*	yes*
9	NA	NA	NA	yes*
10	NA	yes	NA	yes*
11	NA	NA	No	yes*
12	No	No	yes*	yes*

Directly in English to DON	66.6 %
Directly to English only nurses	66.6 %

* = reports in Cantonese/Mandarin
NA = data are not available in most cases because informants did not know who the participant was.

Job Performance or Transfer of Learning to the Job

Do nursing assistants properly read and fill out work-related documents in English ?

Methodology

An exercise was designed to assess the participants' abilities to read and fill out work-related documents. The exercise was based on an English only flow sheet. Participants were asked to enter information from a written or taped narrative in their first language onto the flow sheet. Participants needed to enter 50 items of information. A scoring system was developed.

Findings

Participant	Score in %
1	74.0
2	85.3*
3	85.3*
4	76.6
5	72.6
6	80.6
7	85.3
8	82.6
9	84
10	81.3
11	70.6
12	82.6

Comments

There was no concensus amongst participants, licensed, and supervisory staff on which codes should be used to enter certain kinds of information.

Organizational Performance

Has SCM changed the way it operates in order to most effectively make use of the nursing assistants' skills ?

Methodology

Only one question was included to solicit answers to this outcome question. Participants were asked to give their perspective on how supervisory and licensed staff responded to their increasing language ability.

Findings

Participant	Do English speaking supervisory and licensed staff pay more attention to NA's reports ?
1	NA
2	yes
3	yes
4	yes
5	yes
6	yes
7	NA
8	yes
9	NA
10	NA
11	somewhat
12	I don't know

Yes = 50 %

Comments

The outcome study data-gathering instruments did not solicit sufficient information in this area. SCM has made use of the increasing skills of nursing assistants in ways that the data-gathering instruments did not address (e.g. sending participants to hospital to accompany resident, scheduling across floors, giving nursing assistants administrative tasks etc.)

Organizational Performance

Has the organization changed ?

Methodology

To find out if the program has impacted on the performance of SCM as an organization, these questions were included that may enable the evaluation team to clarify the link between the participants' ability to report changes in condition and SCM's ability to achieve its goals:

- Do NAs report directly ?
- Have their reports enabled licensed and supervisory staff to adjust the patient care plan ?
- Have these adjustments improved the condition of residents ?

Perspective of licensed and supervisory staff

Participant	Did the report enable you to adjust the patient care plan ?			
	DON	Nurses	SDC	Supervisors
1	yes	yes	yes	yes
2	yes	yes	yes	yes
3	yes	yes	yes	yes
4	yes	yes	yes	yes
5	yes	no	yes	yes
6	yes	sometimes	yes	yes
7	yes	yes	yes	yes
8	yes	NA	yes	yes
9	NA	NA	NA	yes
10	NA	yes	NA	yes
11	NA	sometimes	no	yes
12	no	NA	sometimes	sometimes
Yes	66.6 %	50 %	66.6 %	91.6 %

Have these adjustments led to improvement of the resident's condition ?
(Have the reports helped the nursing home achieve its goals of restorative care ?)

Participant	Improvement ?			
	DON	Nurses	SDC	Supervisors
1	yes	yes	yes	yes
2	yes	yes	yes	yes
3	yes	yes	yes	yes
4	no	yes	yes	yes
5	no	no	yes	yes
6	no	yes	no	yes
7	no	yes	NA	yes
8	no	NA	yes	yes
9	NA	NA	NA	yes
10	NA	yes	NA	yes
11	NA	yes	no	yes
12	no	NA	sometimes	yes
Yes	25%	66.6%	50%	100%

Participant Perspective

Participant	Shares language besides English ?	Reports directly in English ?
1	no	yes
2	no	sometimes
3	yes	no
4	yes	sometimes
5	yes	no
6	yes	sometimes
7	yes	no
8	yes	no
9	no	no
10	yes	no
11	yes	no
12	yes	no
	75% (yes)	8.3% (yes)

Participant	Less dependent on interpreter ?	Have reports led to adjustments of plan ?
1	yes	yes
2	yes	I don't know
3	yes	I don't know
4	yes	I don't know
5	somewhat	no
6	yes	I don't know
7	yes	no
8	yes	no
9	yes	no
10	yes	yes
11	nothing	I don't know
12	somewhat	I don't know
	75% (less)	16.6% (yes)

Participant	Noticed improvements in resident's condition as a result of reports ?
1	no
2	I don't know
3	I don't know
4	NA
5	NA
6	I don't know
7	no
8	NA
9	NA
10	yes
11	I don't know
12	I don't know

8.3 % (yes)

Organizational Performance

Has SCM changed the way it operates in order to most effectively make use of the nursing assistants' skills ?

Methodology

Only one question was included to solicit answers to this outcome question. Participants were asked to give their perspective on how supervisory and licensed staff responded to their increasing language ability.

Findings

Participant	Do English speaking supervisory and licensed staff pay more attention to NA's reports ?
1	NA
2	yes
3	yes
4	yes
5	yes
6	yes
7	NA
8	yes
9	NA
10	NA
11	somewhat
12	I don't know

Yes = 50 %

Comments

The outcome study data-gathering instruments did not solicit sufficient information in this area. SCM has made use of the increasing skills of nursing assistants in ways that the data-gathering instruments did not address (e.g. sending participants to hospital to accompany resident, scheduling across floors, giving nursing assistants administrative tasks etc.)

Additional Data: Changes in the Use of Interpreters and Translations

Participant Perspective

Participant	Do English speaking staff need an interpreter to communicate with NA's ?
1	no
2	no
3	no
4	no
5	yes
6	no
7	no
8	no
9	yes
10	no
11	yes
12	yes
	66.6 % (no)

Perspective of supervisory and licensed staff

Participant	Become less dependent on interpreting ?		Need interpeter ?	
	DON	Nurses	DON	Nurses
1	yes	yes	not usually	no
2	no	no	no	not usually
3	yes	yes	no	no
4	yes	yes	no	not usually
5	no	yes	yes	not usually
6	no	sometimes	yes	sometimes
7	yes	yes	no	not usually
8	yes	NA	not usually	NA
9	NA	NA	NA	NA
10	NA	yes	NA	not usually
11	NA	yes	NA	not usually
12	no	yes	yes	yes
	41.6% (yes)	66.6% (yes)	50%*	66.6%*

* = no + not usually

Participant	Interpret less for NA ? Supervisor	Depend less on interpreting ? Supervisor
1	NA	NA
2	yes	yes
3	yes	yes
4	yes	yes
5	yes	NA
6	yes	yes
7	yes	yes
8	yes	NA
9	yes	yes
10	yes	yes
11	yes	NA
12	yes	NA
	91.6% (yes) 8.3% (not applicable)	58.3% (yes) 41.7% (not applicable)

Personal Development of Nursing Assistants

Have nursing assistants benefitted from the ESOL program in ways not directly related to their jobs ?

Methodology

1. Based on a review of previous non work-related outcomes, several possible areas were identified. Participants were asked to respond to these categories in the self-assessment questionnaire by indicating those areas where the program helped them. Open-ended questions were included to solicit additional information. Supervisory and licensed staff were asked if they had observed any non work-related gains as well.

2. To measure any possible gains in general proficiency (i.e. non work-related) the BEST-test was administered. Scores provide information about the participants' abilities to use English for survival purposes in the community. A comparison of pre- and post testscores indicates the overall proficiency gain of participants. Prescores refer to the first time the BEST-test was administered in the program. It should be noted that certain participants had already received a substantial amount of instruction at that time.

Findings

Participant Perspective

Kind of benefit	# of participants
Made new friends	2
Better understand American culture	4
Better prepared for alternative employment	1
Better prepared for future education	5
Other	6

Perspective of Supervisory and Licensed Staff

Kind of Benefit	* of times reported
Became much more confident	13
Became much more social	2
Became more independent	1
Speaks more/Takes more initiative/ Uses English voluntarily	12
Increased her self-esteem	1
Learned some Chinese and practices with residents	1
Saves time/Helps me save time	1
Makes steady progress	2

Proficiency

Participant	**Pre**	Hrs. of Instr.	**Post**	Hrs. of Instr.	**Gain**
1	NA	NA	NA	318	NA
2*	43	164	64	440	21
3*	67	134	72	392	5
4	43	168	55	372	12
5	28	176	40	456	12
6	19	102	40	322	21
7	21	94	38	266	17
8	0	0	53	238	53
9	1	0	NA	255	NA
10	NA	0	NA	218	NA
11	NA	0	NA	84	NA
12	12	0	62	148	50

Average gain/Hrs. of Instr. Received between pre/post =
23.87 (=28.08%)/ 224.5 hrs.
Maximum Score = 85

Suggestions

What can the ESOL program and SCM do to help NAs improve their skills ?

- keep speaking English
- encourage more English
- put the stress on using English
- encourage NAs to express their lack of understanding instead of nodding
- use flow sheets and other documents more often to increase the NA's understanding of providing quality information
- prepare NAs for higher ed
- increase hours of instruction
- make program more accesible to all staff
- offer a Mandarin class for English speaking staff
- correct the NAs' English
- fine the way it is
- provide bilingual documents, write everything side by side English and Chinese
- concentrate on job preformance and specifics
- reduce amount of Chinese translation
- use more 'real' roleplays in class
- try to use English to communicate before using another language

Which data have not been processed yet ?

1. ratings of language skills by participants and supervisory and licensed staff
2. ratings that show how the program has impacted on the skills of workers
3. frequency of reporting to English speaking supervisory and licensed staff

Which data can be further analyzed ?

Basically all according to groupings the team desires.

SIMULATIONS

SIMULATION # 1

WHAT WE ARE LOOKING AT

____

Did you ________ ?

1. knock and/or ask for permission to enter ?
2. greet the resident using the resident's name and/or preferred form of address ?
3. identify yourself by name and job (e.g. I am Johan. I am your nurse aide today).
4. offer help or your services (e.g. Can I help you ? Can I get you anything ?)
5. say why you came (e.g. I'm going to make your bed. Is that OK ?)
6. instruct the resident speaking clearly and slowly ? (e.g. Could you turn your head towards me, please ?)
7. ask about toileting needs ?
8. encourage the resident to participate in exercises or activities ?
9. let the patient know when you didn't understand him/her ?
10. apologize if necessary ? (e.g. I'm sorry. I didn't mean to hurt you.)
11. give a warning in case of potential danger ? (e.g. Watch out, Mr. X)
12. respond to the resident's questions, concerns, or complaints ?
13. look the patient in the eyes as much as possible ?
14. ask for feedback (e.g. Is this fine ?)
15. relay the messages the patient gave you to the CN ?
16. report to the nurse aide what you did/observed ?
17. begin, maintain, and end a conversation while shaving/ambulating ?

OUTCOME STUDY

Are participants able to use English for these purposes that are essential to the delivery of patient care ?

SIMULATIONS

Simulation # 1
a

Instructions for NA: Please, shave this resident using an electric razor. Start outside the room and think of this room as the resident's room. The patient's name is Joe Smith. After you finish, please report to the charge nurse.

Instructions for patient: Do not initiate a conversation. Cause a situation that will make the NA apologize and give a warning (e.g. Ouch, bend over) Respond to the NA as you please. At the end, ask the NA to relay these two messages: 1) a skin rash on your arm, 2) you want to play Bingo today so you would like to know if you can have your medicine at 2 instead of 3.

Instructions for CN: listen to the NA's report. Ask for clarification if necessary. Do not initiate the conversation/report.

Simulation # 1
bis

Instructions for NA: Please, ambulate this patient from his/her w/c to the door and back.
The patient's name is Mary Donovan or Bill Jones. Report to the CN afterwards.

Instructions for patient: Do not initiate a conversation. Pretend you will step in a puddle or trip over something to solicit a warning. Create a situation where the NA will have to apologize (e.g. Ouch, you're hurting me). Mention a few times you are short of breath today and breathe accordingly.

Instructions for CN: see above in Simulation # 1 a.

Materials Simulations 1 a + 1 bis: wheelchair, electric razor, brrom , or puddle.

Coded Use/Objective	Description
1	knock/ask for permission to enter
2	greet using name/preferred form of addr
3	identify self by name/job
4	offer help/services
5	state reason for coming/what will happe
6	instruct resident speaking clearly/slow
7	ask about toileting needs
8	encourage resident
9	indicate lack of understanding
10	apologize if necessary
11	ask for help
12	end conversation inabruptly
13	give warnings in case of danger
14	respond to resident requests/complaints
15	maintain eyecontact as much as possible
16	initiate and maintain a conversation
17	ask for feedback
18	follow oral instructions
19	ask for clarification of instructions
20	follow instructions over P.A.-system
21	report changes in condition orally
22	relay resident messages
23	report accidents, unsafe conditions, mistreatment, neglect, and abuse orall
24	report breakdowns and shortages
25	call in sick/late
26	infer work time from schedule
27	infer instructions for serving from diet cards
28	follow written signs, warnings
29	infer tasks from daily posted nursing sheet
30	measure and record vital signs and intake/output

OUTCOME STUDY JOB SIMULATIONS

INDIVIDUAL AND GROUP ACHIEVEMENT

OBJECTIVES/USES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	% of objectives/uses achieved by individual participants
PARTICIPANTS																															
1	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3	2	3	3	3	3	2	3	3	3	3	3	2	3	3	3	86.6
2	3	3	3	3	3	2	2	2	3	3	3	2	3	3	3	2	3	3	3	3	3	2	2	3	3	3	3	3	3	2	73.3
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	3	3	3	3	3	3	86.6
4	3	3	3	3	3	3	3	2	3	3	3	2	3	3	3	2	3	3	3	3	2	3	2	2	3	3	3	3	3	3	80.0
5	3	2	1	1	2	2	1	1	1	3	1	2	2	2	3	2	3	3	3	3	2	2	3	3	3	3	3	3	3	3	50.0
6	3	3	3	3	3	2	3	2	2	3	3	2	2	2	3	2	3	3	2	3	2	2	2	2	3	3	2	3	3	3	56.6
7	3	2	3	3	3	2	3	2	2	3	3	2	1	3	3	2	3	3	2	3	2	3	2	3	3	3	3	3	3	3	66.6
8	3	3	3	2	3	2	3	2	2	3	2	2	3	2	3	2	3	3	3	3	2	2	2	1	3	3	3	3	3	3	60.0
9	3	3	3	3	3	3	2	2	1	2	3	3	2	3	3	3	2	3	2	3	2	3	2	3	3	3	3	3	3	3	70.0
10	3	3	3	3	3	3	2	3	2	1	3	3	2	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	83.3
11	3	3	3	3	3	3	1	3	1	3	3	3	1	3	3	3	2	3	3	3	1	3	3	2	2	3	3	2	2	3	70.0
12	3	3	3	3	3	3	1	3	1	2	3	3	1	3	3	3	1	3	3	3	3	3	2	2	3	3	3	3	2	3	73.3
13	3	3	3	2	3	2	3	2	3	3	2	2	3	3	3	2	3	3	3	3	2	3	2	3	3	3	2	3	3	3	70.0
14	3	3	3	3	3	3	3	2	2	3	3	3	1	3	3	3	3	3	3	2	3	3	2	3	3	3	3	3	3	3	83.3
15	2	1	1	2	2	2	2	2	2	2	2	2	2	2	3	2	2	3	3	3	2	2	2	3	2	2	3	2	2	3	23.3
16	3	3	3	3	3	3	1	3	3	2	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	2	3	3	3	3	86.6
17	2	3	3	3	2	2	1	2	1	3	3	3	2	3	3	3	1	3	3	3	2	2	2	3	2	3	2	2	3	3	53.3
18			T		E		R		M		I		N		A		T		E		D										NA
19	3	3	3	2	3	3	1	3	1	1	2	2	1	3	3	2	3	3	3	3	3	3	3	3	3	3	2	2	2	3	63.3
20			S			I			C			K				L		E			A			V			E				NA
21		N		O		T				A		S		S		E		S		S		E		D							NA
22	3	2	2	2	3	3	1	3	1	2	2	2	2	2	3	2	1	3	3	3	2	2	3	3	3	3	3	3	2	3	50.0
% of objectives achieved by core group	100	83.3	91.6	83.3	91.6	58.3	50	41.6	33.3	75	83.3	41.6	41.6	75	100	41.6	66.6	100	75	100	25	58.3	33.3	50	91.6	100	83.3	91.6	83.3	91.6	% of obj. achieved by core group 16
% of objectives achieved by all part. in Study	89.4	78.9	84.2	68.4	84.2	57.8	42.1	42.1	31.5	63.1	68.4	42.1	36.8	73.6	100	42.1	57.8	100	84.2	94.7	31.5	57.8	36.8	68.4	84.2	89.4	73.6	78.9	73.6	94.7	% of obj achieved by all particip. 6

FLOW SHEET EXERCISE

Kate

At 7am, I told Kate "it's time to get up," She didn't want to get up. She said: "do other people first." But when I said "please," she said OK. I helped her to get dressed, and put the socks and shoes on for her. I helped her walk to the bathroom. She had a shower. I scrubbed her back for her because she couldn't reach there by herself. I shaved her and cut her finger nails. She needs a shave and has her finger nails cut weekly. She combed her hair by herself.

I helped her to put on her clothes, and did her buttons on the back. At 10am, May Chen and I took her for a 20-feet walk. She never likes to walk. When we encouraged her, she said "just a little" and she did. Most of the day she sat in a wheelchair. When she needed to get out of her bed or wheelchair, someone had to help her.

I took her to the bathroom every hour to empty her bladder, because she is incontinent. Although she kept saying "I went" or "I have none," I knew that she didn't. Right after her breakfast and lunch, I took her to the bathroom to have her stool. We all have to keep this in mind, if someone forgets to do this right after a meal, she will have to do a lot more work.

She complained about her pains here and there or said "I'm dying" again several times. But she was basically a sober-minded person, and she's friendly and very nice.

FLOW SHEET EXERCISE

SCORING SHEET

1. Month	1	2	3	___
2. Year	1	2	3	___
3. Resident name	1	2	3	___
4. Resident room #	1	2	3	___
5. Initials 1	1	2	3	___
6. Initials 2	1	2	3	___
7. Signature	1	2	3	___
8. Shift (=D)	1	2	3	___
9. Day (=Tuesdav)	1	2	3	___
10. Bed Bath	1	2	3	___
11. Partial	1	2	3	___
12. Whirlpool/Shower	1	2	3	___
13. Shave	1	2	3	___
14. Mouth/Denture Care	1	2	3	___
15. Mouth Special Care	1	2	3	___
16. Nails	1	2	3	___
17. Grooming	1	2	3	___
18. Dressed Day/Night	1	2	3	___
19. Socks and shoes only	1	2	3	___
20. Not dressed	1	2	3	___
21. Ambulate	1	2	3	___
22. Distance	1	2	3	___
23. Device	1	2	3	___
24. Geri/Wheel Chair	1	2	3	___
25. Transfer	1	2	3	___
26. Device	1	2	3	___
27. Bed or W/C Position	1	2	3	___
28. ROM	1	2	3	___
29. Bladder Continent Freq.	1	2	3	___
30. Oncontinent Freq.	1	2	3	___
31. Toileted	1	2	3	___
32. Bowel Continent Freq.	1	2	3	___
33. Incontinent freq.	1	2	3	___
34. Toileted freq.	1	2	3	___
35. Bladder Retraining	1	2	3	___
36. Bowel Retraining	1	2	3	___
37. Catheter Care	1	2	3	___
38. Wandering	1	2	3	___
39. Hoarding	1	2	3	___
40. Noisy	1	2	3	___
41. Verbal abuse	1	2	3	___
42. Physical abuse	1	2	3	___
43. Uncooperative	1	2	3	___
44. Other	1	2	3	___
45. Preventive Skin Care	1	2	3	___
46. Elbow/Heel Protector	1	2	3	___
47. Brace/Splint	1	2	3	___
48. Sheep Skin	1	2	3	___
49. Other (abdominal pain)	1	2	3	___
50. Other column *	1	2	3	___

TOTAL (=T)

SCORE: $\frac{T \times 2}{3}$ =

QUESTIONNAIRE SUPERVISORY AND LICENSED STAFF

Outcome Study
SCM Workplace Education Program

Questionnaire to be completed by English speaking supervisory and licensed staff

Your position: ____________ Date: ________ Name of nursing assistant: ____________

PART 1

Reporting changes in residents' condition

1. Do you share a language with him/her other than English ?

   ○ Yes ○ No

   If yes, which one(s) ? ______________________________

2. How long have you worked with him/her ?

   ____

3. Does he/she report to you

   ○ directly in English ?
   ○ directly in Chinese ?
   ○ through an interpreter ?
   ○ not at all

4. How often does he/she report to you ?(e.g. once a week during patient care rounds) ______________________________

5. Have his/her reports enabled you to adjust the patient care plan as necessary ?

   ○ Yes ○○ No ○ ____________

   If yes, have these adjustments had an impact on the resident's condition ?

   ○ Yes ○ No ○ ____________

   Please, explain your answer: ______________________________
   ____
   ____

6. Do you interpret for him/her ?

   ○ Yes ○ No

   If yes, how often ? (e.g. once a week) ____________

7. Would you say he/she has become less dependent on you to interpret for him/her ?

   ○ Yes ○ No ○ ____________

8. Do you need an interpreter or written translations to instruct him/her ?

○ Yes ○ No ○ Not usually

If yes, under what circumstances ______________________________
____

9. Have you become less dependent on interpreters or translations to communicate with him/her ?

○ Yes ○ No

10. Please, record any other comments related to his/her ability to report changes in the residents' conditions. ____________
____
____

PART 2 General Comments

1. Do you generally know who is in the ESL program ?

○ Yes ○ No

2. How would you rate his/her ability to use English on the job ?

○ Excellent ○ Good ○ Average ○ Somewhat weak ○ Weak

3. Have you noticed any additional changes since he/she enrolled in the ESL program ? (e.g. more confident) ______________________
____
____

4. According to you, how much has the ESL program contributed to improving his/her language skills ? ____________________________

○ No idea ○ A lot ○ A little ○ Not at all

5. How can the ESL program better help nursing assistants improve their language skills ? _____________________________________
____

6. What else might be done by SCM, by supervisors, and by nursing assistants to help nursing assistants use English to perform their jobs ? ____

THANK YOU FOR FILLING OUT THIS QUESTIONNAIRE. IF YOU HAVE QUESTIONS, PLEASE CONTACT BARBARA IRVING, HSIAO CHANG, OR JOHAN UVIN.

RESIDENT INTERVIEW

Outcome Study
SCM Workplace Education Program
Interview Guidelines
Resident Interview

Name of resident: ____________________ Floor: ________
Name of participant: ____________________ Your name: ____________________ Date: ________

INSTRUCTIONS: Explain the purpose of the interview to the resident(e.g. "SCM wants to find out how well nursing assistants can use English to talk with you.") Ask if it is fine that you would take notes. Mention that the results of the interview will be kept confidential. Use one or more of these questions to initiate or maintain a brief conversation. Record the resident's answer by checking the answer that comes closest to what the resident says. Feel free to record responses more elaborately.

1. Does he/she speak English with you during bathing, dressing, eating, toileting, or walking ?

   ○ Yes ○ No ○ ______________________________

2. Does he/she explain what he/she will be doing with you ?

   ○ Yes ○ No ○ ______________________________

3. Does he/she give your messages to the nurse ?

   ○ Yes ○ No ○ ______________________________

4. How well do you understand him/her when she/he is talking with you ?

   ○ not at all ○ a little ○ well

   ○ ______________________________

5. How well does he/she understand you when you are talking to him/her ?

   ○ not at all ○ a little ○ well

   If 4 + 5 are hard, why do you think that is ?

   ○ doesn't know English very well
   ○ doesn't understand her job
   ○ ______________________________

6. Overall, has talking with him/her

   ○ gotten better ? ○ gotten worse ? ○ stayed about the same ?

COMMENTS ______________________________
____
____

QUESTIONNAIRE NURSING ASSISTANTS

OUTCOME STUDY

QUESTIONNAIRE FOR NURSING ASSISTANTS

Your name: ________ Date: ____ ____

PART 1: INTERACTIONS WITH RESIDENTS IN ENGLISH

INSTRUCTIONS: Please check the answer which most closely describes your ability to perform these job tasks. Check only ONE answer for each item.

KEY: 1 = don't know how to 2 = can but don't 3 = do somewhat
4 = do fine

	1	2	3	4
1. knock/ask permission to enter				
2. greet resident using name and/or preferred form of address				
3. say my name and job				
4. offer help and services				
5. say what will happen/why I came				
6. explain procedures				
7. instruct resident speaking clearly and slowly (e.g. vital signs, dressing, feeding, etc.)				
8. ask about toileting needs				
9. encourage resident to eat, exercise, and participate in activities				
10. let resident know when I don't understand				
11. apologize if necessary				
12. ask for help				
13. end a conversation inabruptly				
14. give warnings in case of danger				
15. respond to resident questions, complaints, and concerns				
16. ask for feedback (e.g. comfort, clothing preferences, water temperature)				

INSTRUCTIONS: Please answer these questions.

17. Overall, how would you rate your ability to perform the above tasks in English ?

○ Excellent ○ Good ○ Average ○ Needs some improvement
○ Needs a lot of improvement ○ ______________________

18. What could be done to help you improve your job-related English skills ? ______________________________

____

PART 2 MISUNDERSTANDINGS WITH ENGLISH SPEAKING RESIDENTS

1. Do language misunderstandings regularly take place between you and the residents ?

○ No ○ Yes
If yes, why, with whom, and about what ? ______________________

____

2. Has the number of misunderstandings

○ Increased ? ○ Decreased ? ○ Remained about the same ?

3. How do you normally avoid or resolve misunderstandings ? __________

____

4. What has helped you to avoid or resolve language misunderstandings ? (For example: inservices, ESL workshops, advice from a co-worker ?)

____

PART 3 REPORTING CHANGES IN THE CONDITION OF RESIDENTS

1. Do you share a language with your supervisor other than English ?

○ Yes ○ No

If yes, which one (s) ? ______________________________

2. Does your supervisor know that you are in the ESL program ?

○ Yes ○ No ○ I don't know

3. How long have you worked with your supervisor ? ______________

4. Do you report to your supervisor

○ directly in English ?
○ directly in Chinese ?
○ through an interpreter ?

5. How often do you report to your supervisor ? ______________

6. Do you report to English speaking charge nurses and other nursing staff (e.g. Director of Nursing) ?

○ Yes ○ No

7. If yes, do you report

○ directly in English ?
○ through an interpreter ?

8. Does your supervisor interpret for you ?

○ Yes ○ No

If yes, how often ? ______________________________

9. Who else interprets for you ? ______________________________

10. Have you become less dependent on your supervisor to interpret for you ? ______________________________

11. Have your reports to English speaking staff enabled your supervisor to adjust the patient care plan as necessary ?

○ Yes ○ No ○ I don't know

If yes, have you noticed changes in the resident's condition as a result of these adjustments ?

○ Yes ○ No ○ I don't know

12. Please give an example: ______________________________

13. Does your supervisor need an interpreter or written translations to tell you what to do or ask you a question ?

○ Yes ○ No

If yes when ? ______________________________

14. Do English speaking charge nurses and nurses need an interpreter or written translations to tell you what to do or ask you a question ?

○ Yes ○ No

If yes, when ? ______________________________

15. Do you feel that English speaking nursing staff pay more attention to what you have to say about care of residents ?

○ Yes ○ No

Please, explain your answer: ______________________________

16. What should be done to improve your ability to report changes in the resident's condition ? ______________________________

PART 4 OTHER OUTCOMES

INSTRUCTIONS: The following questions ask how the ESL program has helped you with your personal goals. Please check ONE answer for each question.

HAS THE ESL PROGRAM HELPED YOU	No	Somewhat	A lot
1. make new friends ?			
2. understand American culture ?			
3. get a better job ?			
4. get more education ?			
5. become a U.S. citizen ?			
6. improve your health ?			

8. Please describe any other ways the ESL program has helped you:

____

9. What can the ESL program do to better help you ?

____

Chinese Translation of [illegible]

護士助理英語班學習成果調查表

PART 1: 用英語與院民交談

注意：請在用數字表示的四個答案中選最接近你的實際情況的一項打 ✓。

1 = 不會　2 = 會但未做　3 = 做了一些　4 = 做得很好

1. 敲門並詢問是否可以進入房間
2. 用名字或院民所喜歡的方式稱呼他並問候
3. 說明自己的名字及職務
4. 提供協助及服務
5. 說明前來的原因及下一步做的事
6. 解釋各步驟
7. 清楚而緩慢地向院民講清要求
8. 詢問院民是否需要上廁所
9. 鼓勵院民進食，鍛煉，及參加活動
10. 告訴院民沒有聽懂他的話
11. 必要時向院民道歉
12. 要求幫助
13. 自然而不是突然地終止談話
14. 在可能發生危險的情況下及時提出警告
15. 對院民提出的問題，對病痛的抱怨，及所關心的事項作出解答
16. 徵詢病人的意見（如：舒適程度，對衣着的選擇，水溫）

BEST COPY AVAILABLE

17 你如何從大體上評價你自己用英語完成上述任務的能力

○ 極好 ○ 好 ○ 中等 ○ 需要某些提高

○ 需要很大提高 ○ ____

18. 用何種方式可以幫助你提高你的工作實用英語的程度？

____

PART 2 與院民發生語言誤解

1. 你經常與院民發生語言上的誤解嗎？

○ No ○ Yes

-如果是 yes，請說明為甚麼，與誰，及為何事

2. 發生誤解的次數是在

○ 上昇 ○ 下降 ○ 與以前差不多

3. 你一般是如何避免或澄清誤解的？

4. 你曾經得到哪些方面的幫助，避免或澄清語言誤解？

（如： Inservices 職業培訓，ESL Workshops，英語班特設的培訓班，同事的建議）

Part 3 報告院民狀況的變化

1. 你與你的 Superviser 可用英語以外的一種語言交談嗎？

○ Yes ○ No

-如果是 Yes，請說明是哪一（幾）種：____

2. 你的 superviser 是否知道你在英語班學習？

○ Yes ○ No ○ 我不清楚

3. 你和你的 superviser 共事多久了？

4. 你向你的 superviser 作報告時，你是

   ○ 直接用英語
   ○ 直接用漢語
   ○ 通過翻譯？

5. 你多久向 superviser 作一次報告？

6. 你向祇講英語的護士長 Charge Nurse 及其他護理人員（如護理主任）作報告嗎？

   ○ Yes ○ No

7. 如是 yes，那次報告時你

   ○ 直接用英語
   ○ 通過翻譯

8. 你的 Superviser 替你翻譯嗎？

9. 另外還有誰替你翻譯？

10. 你有沒有比以前較少地依賴你的 superviser 替你翻譯？

11. 你用英語向護理人員作的報告有沒有使你的 Superviser 對護理計劃作出必要的修改？

   ○ Yes ○ No ○ 我不清楚

如果是 Yes，你有沒有注意到院民的狀況因上述修改而起了變化？

   ○ Yes ○ No ○ 我不清楚

12. 請舉一例 ______

13. 你的 supervisor 是否要通過翻譯或用譯文向你交代工作或提出問題？

O Yes　　　　O No

如是 Yes，甚麼時候 ____

14. 講英語的護士長及護士是否需要通過翻譯或用譯文纔可向你佈置工作或提問題？

O Yes　　　　O No

如是 Yes，甚麼時候 ____

15. 你是否覺得講英語的護理人員對你在護理方面的意見比以前重視？

O Yes　　　　O No

如是 Yes，甚麼時候

16. 為提高你報告院民狀況變化的能力，你有哪些建議？

Part 4. 其他方面的結果

注意：下列問題詢問英語班如何幫助你在達到個人目標上取得進展，對每一問題請祇選一個答案。

英語班幫助你	No	Somewhat	A lot
1. 交到新朋友？			
2. 理解美國文化？			
3. 得到一更好工作？			
4. 受到更多的教育？			
5. 成為美國公民？			
6. 改善了你的健康狀況？			

8 若有其他方面的幫助，請詳述 ____

7. 英語班可做些甚麼以便更好地為你服務？ ____

United Electric Controls Company

CASE STUDY:
OUTCOME STUDY AT UNITED ELECTRIC CONTROLS

Background: United Electric Controls Company, Watertown

Since 1987 this successful family-owned manufacturer of industrial sensors and temperature control devices has overhauled its management and production technologies according to the principles of "continuous improvement." Motivated by severe profit losses, it abandoned traditional "large lot" manufacturing methods in favor of the techniques that stress employee participation in the production process. In order to facilitate these company-wide changes, management offered ESL instruction to its limited- English-proficient workers, approximately 45 of its 350 employees. In 1990 United Electric Controls Company (UE) won the prestigious Shingo prize for excellence in manufacturing.

In the early 1980s, unable to find native-English-speaking people for assembly work, UE hired a small group of Cambodian refugees and conducted its first ESL program with them. The success of this year-long program resonated a few years later with the need articulated by one of the new employee driven "action groups" to provide English language instruction for employees. Dramatic changes in the production process required all workers to employ more written and oral communication skills, to speak up in their action groups and take initiative with solving problems. Limited-English-proficient workers had double trouble learning the new ways. They not only had to learn the new methods themselves, they had to learn the English language vocabulary that would allow them to learn the new methods.

The decision to overhaul production methods brought the need for English-language instruction to the fore. But all employees at UE were asked to learn something new. They were being asked to learn how to view their work as an opportunity for continuous improvement of the production process, which demanded an atmosphere of study and practice. The action group which identified the need for ESL instruction was acting in accordance with the new guidelines not to be satisfied with the status quo.

ESL classes meet for a total of six hours per week. The company provides full release time for 45 students.

The barriers to success of the UE ESL program came primarily from native-English-speaking employees who at first resented.the extra attention the limited-English-proficient workers received. Slowly, over time, with the help of an excellent teaching staff and the support of upper management, these barriers have fallen away. Bruce Hamilton, Vice President of Manufacturing, wrote: "Lessons learned at United Electric deal not so much with the results often associated with "just in time" manufacturing or even the techniques by which these results are achieved. Rather, they revolve around a struggle to understand which of the manufacturing traditions that have served the company so well for sixty years must be retained, and which must be changed." The ESL program continues to be an integral part of the overall strategy to change and continually refine the production process. Without it, old and new employees who have limited English-language skills would not be able to participate fully in these changes.

Description of the evaluation process:

The make-up of the evaluation team: The UE team was composed of a vice president for human resources, a shop-floor supervisor, and two representatives of the education-providing institution, the Middlesex County Employment and Training Program. (One of these representatives served as coordinator of the program and the other functioned as instructor.) A student in the program also participated in early meetings of the team.

The process: The UE team followed the ten-step process described in Section II of the report of the MWEI Cycle 4 Evaluation. All members of the team showed an active interest in the project, although the major responsibility for gathering and analyzing data was left in the hands of the program coordinator and instructor.

What was learned about the education program: See Section II, Step 8 of the report of the MWEI Cycle 4 Evaluation for a summary of the team's findings, and the attached data summaries.

What was learned about the evaluation process: The active involvement of the UE management representatives was a major strength of the project. The supervisor participating on the team had been a prime mover in getting the ESL program started in the first place, and her interest was demonstrated in her active participation in team meetings. The vice president for human resources was also key to the process. He had helped the company map out a sweeping change toward a more-participatory form of management (of which the ESL program was one component), and he saw this outcome study as a way of assessing the impact which these changes were having on the company. By showing an interest in what the data said, he in effect provided an "audience" and purpose for the study. In terms of limitations, the education staff -- like those in all other sites participating in the project -- had limited time to give to the project, as they had other job duties to deal with. Another limitation was the fact that the student representative on the team was involved in only a limited way, in part because her English was limited but also because she had little background in the issues discussed by the team. This suggests that special attention be given to helping learners have meaningful roles on evaluation and planning teams.

Attached data-gathering instruments, summaries of findings, and related documents:

Data-gathering instruments:
- -- Questionnaire for ESL Students
- -- Questionnaire for Supervisors

Summary of findings:

The data are presented in a summary grid. This team did not produce a final report.

RESULTS FROM SUPERVISOR QUESTIONNAIRES:
UNITED ELECTRIC CONTROLS, FALL 1991

Sup'visr	Student	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Ave. score
1	1	2	2	NE	3	2	2	2	2	2	1	2	2
1	2	3	3	NE	3	2	2	3	2	3	1	2	2.4
1	3	3	3	NE	3	2	1	3	3	3	1	2	2.4
1	4	2	3	NE	2	DK	2	3	2	1	1	2	2
1	5	3	3	NE	3	3	3	3	3	3	2	3	2.9
2	6	3	NR	NE	3	NE	NE	3	NE	NR	3	3	3
2	7	2	NR	NE	2	NE	NE	2	2	NE	NR	1	1.8
2	8	3	NE	NE	2	NE	NE	3	2	2	NR	1	2.2
3	9	3	2	3	3	2	NE	3	2	3	2	3	2.6
3	10	1	2	1	2	1	NE	2	NE	1	2	1	1.4
3	11	NR	3	2	3	1	NE	3	2	3	3	3	2.2
4	12	3	2	3	3	NE	NE	3	3	2	3	3	2.9
4	13	3	3	2	3	NE	NE	3	3	3	3	3	2.9
4	14	3	3	2	3	NE	NE	3	3	3	3	3	2.9
Ave. score		3	3	2	3	2	2	3	2	2	2.1	2	

Response code:

NE= Employee not expected to perform this task.
NR= No response given to this question.
1= Employee can do this, but doesn't do it.
2=Employee does this somewhat.
3= Emloyee does this well.

UNITED ELECTRIC CONTROLS
E.S.L. PROGRAM EVALUATION:

QUESTIONNAIRE
FOR
SUPERVISORS

5/6/91

Name of supervisor completing questionnaire ____________________

Signature of supervisor ________________________________

Date questionnaire completed _________________

Employee being evaluated __________________________________

INSTRUCTIONS:

U.E. would like to know what impact the ESL program has had on the above employee's job performance. This questionnaire will help U.E. know how to improve the ESL program.

Please rate how well the employee can use English to perform the following tasks at this time. (If the employee doesn't normally have to perform a particular task, write "doesn't apply" in the space marked "Explain your answer.")

Results of this questionnaire will be kept confidential for you and the employee, so please be as accurate and honest as possible.

Use of documents:

1. The employee understands the information contained in the yearly performance review.

_____ I don't know one way or the other.
_____ Employee can't do this at all.
_____ Employee can do this, but doesn't do it.
_____ Employee does this somewhat.
_____ Employee does this well.

Explain your answer: ____
____
____
____

2. The employee understands and uses "prints" required by the job.

_____ I don't know one way or the other.
_____ Employee can't do this at all.
_____ Employee can do this, but doesn't do it.
_____ Employee does this somewhat.
_____ Employee does this well.

Explain your answer: ____
____
____
____

3. The employee understands the X-matrix and uses English to discuss information in the X-matrix as it relates to the job.

_____ I don't know one way or the other.
_____ Employee can't do this at all.
_____ Employee can do this, but doesn't do it.
_____ Employee does this somewhat.
_____ Employee does this well.

Explain your answer: ____
____
____
____

Communicating in English with other groups:

4. In the plant, the employee uses English to communicate with groups whose mother tongue is different from the employee's.

_____ I don't know one way or the other.
_____ Employee can't do this at all.
_____ Employee can do this, but doesn't do it.
_____ Employee does this somewhat.
_____ Employee does this well.

Explain your answer: ____

Teamwork:

5. The employee uses English to participate actively in CEDAC groups.

_____ I don't know one way or the other.
_____ Employee can't do this at all.
_____ Employee can do this, but doesn't do it.
_____ Employee does this somewhat.
_____ Employee does this well.

Explain your answer: ______________________________

6. The employee uses English to participate actively in action centers.

_____ I don't know one way or the other.
_____ Employee can't do this at all.
_____ Employee can do this, but doesn't do it.
_____ Employee does this somewhat.
_____ Employee does this well.

Explain your answer: ______________________________

7. The employee uses English to participate actively in production work cells.

_____ I don't know one way or the other.
_____ Employee can't do this at all.
_____ Employee can do this, but doesn't do it.
_____ Employee does this somewhat.
_____ Employee does this well.

Explain your answer: ______________________________

8. The employee uses English to participate actively in cross-training activities.

_____ I don't know one way or the other.
_____ Employee can't do this at all.
_____ Employee can do this, but doesn't do it.
_____ Employee does this somewhat.
_____ Employee does this well.

Explain your answer: ______________________________

9. The employee uses English to participate actively in the Valued Ideas Program.

_____ I don't know one way or the other.
_____ Employee can't do this at all.
_____ Employee can do this, but doesn't do it.
_____ Employee does this somewhat.
_____ Employee does this well.

Explain your answer: ____
____
____
____

Health and safety:

10. The employee uses ergonomics to practice a "healthy work style" on the job.

_____ I don't know one way or the other.
_____ Employee can't do this at all.
_____ Employee can do this, but doesn't do it.
_____ Employee does this somewhat.
_____ Employee does this well.

Explain your answer: ____
____
____
____

Additional comments:

11. Overall, how would you rate the employee's ability to use English to perform the above tasks during the past six months?

_____ The employee is about the same as six months ago.
_____ The employee has improved a little bit.
_____ The employee has improved a lot.

12. Please add any other information (special accomplishments, problems, examples) about the employee's abilities to use English on the job which you think we should know about:
____
____
____
____
____
____
____

13. If you have any suggestions for how the ESL program might be improved, please add them here:
____
____
____
____
____

Thank you for your cooperation in completing this questionnaire.

QUESTIONNAIRE
FOR
E.S.L. STUDENTS
AT UNITED ELECTRIC CONTROLS

5/6/91

Name of employee ____________________________

Date questionnaire completed ________________________

Signature of employee ___________________________

INSTRUCTIONS:

U.E. would like to know how much the ESL program has helped you on and off the job. You can help us by completing this questionnaire.

Please answer the following questions about how well you can now use English. At the end there is space where you can add other comments.

Results of this questionnaire will be kept confidential.

Please rate your ability to perform the following tasks at U.E.:

Use of documents:

1. I understand the information contained in the yearly performance review.

_____ I can't do this at all.
_____ I can do it, but I don't do it.
_____ I do it, but not as well as I would like to.
_____ I do it well.

Explain your answer: _____________________________________
____
____
____

2. I understand and use "prints" required by my job.

_____ I can't do this at all.
_____ I can do this, but I don't do it.
_____ I do this, but not as well as I would like to.
_____ I do this well.

Explain your answer: _____________________________________
____
____
____

3. I understand the X-matrix and use English to discuss information in the X-matrix as it relates to my job.

_____ I can't do this at all.
_____ I can do this, but I don't do it.
_____ I do this, but not as well as I would like.
_____ I do this well.

Explain your answer: ____
____
____
____

Communicating in English with other groups:

4. In the plant, I use English to communicate with groups whose mother tongue is different from mine.

_____ I can't do this at all.
_____ I can do this, but I don't do it.
_____ I do this, but not as well as I would like.
_____ I do this well.

Explain your answer: ____
____
____
____

Teamwork:

5. I use English to participate actively in CEDAC groups.

_____ I can't do this at all.
_____ I can do this, but I don't do it.
_____ I do this, but not as well as I would like.
_____ I do this well.

Explain your answer: ____
____
____
____

6. I use English to participate actively in action centers.

_____ I can't do this at all.
_____ I can do this, but I don't do it.
_____ I do this, but not as well as I would like.
_____ I do this well.

Explain your answer: ____
____
____
____

7. I use English to participate actively in production work cells.

_____ I can't do this at all.
_____ I can do this, but I don't do this.

_____ I do this, but not as well as I would like.
_____ I do this well.

Explain your answer: ____
____
____
____

8. I use English to participate actively in cross-training activities.

_____ I can't do this at all.
_____ I can do this, but I don't do this.
_____ I do this, but not as well as I would like.
_____ I do this well.

Explain your answer: ____
____
____
____

9. I use English to participate actively in the Valued Ideas Program.

_____ I can't do this at all.
_____ I can do this, but I don't do it.
_____ I do it, but not as well as I would like to.
_____ I do it well.

Explain your answer: ____
____
____
____

Health and safety:

10. I use ergonomics to practice a "healthy work style" on my job.

_____ I can't do this at all.
_____ I can do this, but I don't do it.
_____ I do it, but not as well as I would like to.
_____ I do it well.

Explain your answer: ____
____
____
____

Additional comments about using English on the job:

11. Overall, how would you rate your ability to use English to handle the above tasks during the past six months?

_____ I am about the same as I was six months ago.
_____ I have improved a little bit.

_____ I have improved a lot.

12. If you feel your job-related English skills have improved, what has been the cause of the improvement? (Check all answers that apply, ranking them in order of impact on your skills, with "1" having the most impact.)

_____ I've learned from using English on the job.
_____ The ESL class has helped.
_____ I've learned from other experience (for example, another education program, tutoring from a family member, watching TV, etc.) Please be specific:
____
____
____
____

Using English off the job:

Please check all of the following answers which apply to you:

13. In addition to my ESL classes at U.E., I have:

_____ Applied to adult education programs in the community.
_____ Been accepted into an adult education program in the community.
_____ Begun classes in an adult education program.
_____ Completed classes in an adult education program.

14. In addition to technical training I have received at U.E., I have:

_____ Applied to a technical training program in the community.
_____ Been accepted into a technical training program.
_____ Begun classes in a technical training program.
_____ Completed classes in a technical training program.

15. Outside the job, I now am more comfortable using English:

_____ With my children.
_____ With neighbors and friends.
_____ With strangers on the street, at the market, etc.
_____ In my children's school.
_____ In understanding the news.
_____ In my place of worship.
_____ In community activities like a block club, etc.

Final comments:

16. Please add any other information about your abilities to use English on or off the job which you think we should know about:
____
____
____
____
____

Personal Information:

17. When did you start in the ESL program? ______________________

18. Since you first began, did you drop out of the program for any amount of time?

_____ Yes (If "Yes," when did you drop out and when did you return?
____)

_____ No

19. How many months in total have you attended class? _____ months

20. Before the class began, what was your skill level in:

Listening in English:

_____ Good
_____ Medium
_____ Poor

Speaking English:

_____ Good
_____ Medium
_____ Poor

Reading in English:

_____ Good
_____ Medium
_____ Poor

Writing in English:

_____ Good
_____ Medium
_____ Poor

Thank you for your cooperation in filling out this questionnaire.

Employee

Supervisor Comments (slightly edited)

Question #1

Employee # 1. I help Nancy understand review. = 2

2. I feel can read, understand as well. I take time to make sure..... = 4

3. ....can do this with a little assistance. = 4

4. ...helped her read and understand everything = 2

5. ...fully understands... = 5

Q. 2

1. Nancy uses prints procedures and work orders. Important fully understands. = 5

2. Reads print procedures and work orders well...follows written instructions very well. = 5

3. throughly uses, asks when not sure = 5

4. her job is to understand prints and to help others understand them.

Q. 3

1. has been trained...does not discuss it very often = 1

2. has had training ... not discussed it yet one on one = 1

3. has had training ... not discussed it yet one on one = 1

4. trained ... not discueed it yet one on one = 1

5. trained ... not discussed it yet one on one = 1

Q. 4

1. Communicates with other employees. Also speaks native language when she can. = 4.5

2. not shy...will speak to everyone when needed = 5

3. communicates well, I am sure will continue to benefit from the program = 5

Question 4 continued..

1. communicates with everyone = 5
2. works hard at communicating... understands difficulties... can be sympathetic = 5

Q. 5

1. has participated... sometimes reserved in speaking her thoughts =
2. has in the past... not active...at the moment = 4
3. has in the past...not active at the moment = 4
4. do not remember if she has participated = ?
5. communicates her ideas on CEDAC process. = 5

Supervisor Comments Continued
Supervisor Dan Fleming

Q. 6

Employee 1. Same as Q. 5 comment = 4
2. Same as Q. 5 comment = 4
3. Same as Q. 5 comment = 4
4. has participated will speak up in meeting or action center = 5
5. will speak her mind - We all value her opinion = 5

Q. 7

1. works well in work cell can communicate with everyone = 5
2. T. is a silent leader, knows and understands what is needed in more than one cel
3. works well as a teammember = 5
4. works well, communicates with others in the work cell = 5
5. works closely with every work cell, offering support = 5

Q. 8

1. N. has learned many new jobs. This is important to her. = 5
2. has learned new jobs -- smart lady -- could cross-train more = 5
3. does work in other ares and communicates well = 5
4. has not cross-trained in any new areas 1
5. can communicate well, but a need to improve because of leadership position = 4

Q. 9

1. has participated only a few times, should participate more = 4
2. has participated, but gets frustrated at lack of support for her ideas (lack of employee support) = 4 5
3. has had some ideas implemented. I encourage her, but lacks confidence in her English ability = 4
4. has not participated to my knowledge = 1
5. has participated, could possibly help implement others' ideas = 5

Q. 10

1. has been trained but not made many improvements = 3
2. has been trained but not made many improvements = 3
3. has been trained but not made many improvements = 3
4. has been trained but not made many improvements 3
5. has made some changes, but could get more actively involved = 4

Statistical Digest - SUpervisor Dan Fleming Continued

Questions 11,12,13

Q. 11

1. B
2. B
3. B
4. B
5. B and C

Q. 12

Comments

1. continues to improve each year...should continue...in ESL program
2. speaks English well, I'm sure she has benefited from the ESL program.. I'll encourage her to continue in the future
3. communicates well, I feel program will help her to communicate better bet, more important, give her confidence to speak and write more often
4. has improved and continues to benefit from the program
5. important for her to communicate effectively in her leadership role She should continue to participate in the program

Q. 13

Suggestions for improvement in ESL program

1. .have guest speakers or guest writers, possibly people they'd be
2. does student have homework assignments e.g. reading an article in the paper or magazine or writing about a subject
3. give homework assignments every class
4. CONTINUE TO PUBLISH employees writing - I have enjoyed reading them, . have seen improvements, and I know it builds their morale
5. get more students involved in writing, possibly examples of work related things such as valued ideas forms, minutes, memos

Supervisor #1 Questions 1-10 **Statistical Digest** · Page 1 (P.T.O. Page 2)

	1	2	3	4	5	6	7	8	9	10
Employee #1	d	d	d	d+e	d	d	d	d	d	c
#2	e	e	c	e	d	d	e	d	e	c
#3	e	e	c	e	d	c	e	e	e	c
#4	d	e	c	d	c	d	e	d	c	c
#5	e	e	d	e	e	e	e	e	e	d

ST 1

Total of Respondents : 20
One was unable to complete because of literacy problems

	Can't Do	Can But Don't	Do, Could Do Better	Do Well	N/A-N/
1. Performance Review	-	-	9	7	Rest (
2. Blueprint Reading	1	1	10	5	Rest (
3. Understanding X-Matrix	2	1	11	3	Rest (
4. Speaking English at work	-	2	10	5	Rest (
5. CEDAC Group	-	1	15	-	Rest (
6. Action Centers	2	2	7	1	Rest (
7. Work Cells	-	1	10	5	Rest(3
8. Cross-Training	-	-	11	4	Rest (
9. Valued Ideas	1	-	9	2	Rest (
10. Use of Ergonomics	-	-	6	9	Rest (
Totals (1-10)	6	8	98	41	37

ST 2

Questions 11-20 - Statistical Digest

11. (i)
(ii)
(iii)

12. (i)
(ii)
(iii)

13. (i)
(ii)
(iii)
(iv)

14. (i)
(ii)
(iii)
(iv)

15. (a)
(b)
(c)
(d)
(e)
(f)
(g)

16. Comments	G	M	P
(i)	4	9	4
(ii)	1	12	4
(iii)	2	10	5
(iv)	2	7	8

17. '1988' - 6
'4 years ago' - 3
'1987' - 1
3/91 - 2
9/90 - 1
N/R - rest.

18. Yes - 1 ('1989' = 1 year)
No - 10
No response - rest

19. (Total Months)

4 years	3
36 months	2
24 months	1
18 months	1
8 months	1
2 months	2
N/R	rest.

ST 3

Digest of Comments. (Some slight editing)

Q. 1

How many people said these things?

1. Before English class, I couldn't do this at all.
2. I like to do everything perfect, but I can't because I need more time and more experience.
3. I think I'm doing my job careful, I do my best.
4. Sometimes we aften hear CEDAC, X-M, or TE programs. I don't understand the whole subject beacuse I'm not too familiar with these words.
5. I understand it well.

Q. 2

1. In my job, no opportunities to use blueprints.
2. Sometimes I need some help, but I do this.
3. because I can't reading very well

Q. 3

1. I can read the X-Matrix diagram
2. I try to use English that I learned in the class to discuss X-Matrix.
3. I need more pratice because I didn't attend the class.
4. I can speak, but I can't write about the X-Matrix.
5. I would like to understand more.

Q. 4

1. I use English to any groups whose mother-tongue is not English.
2. I can communicate very easily about my job because the English classes help me too much.
3. I do my best to understand to communicate.
4. I have no problems to communicate with my English speaking friends.
5. Sometimes I can't understand, but I pay more attention when somebody speaks to me.

Q. 5

1. I understand, but I can't explain.
2. At times, I participate actively in CEDAC groups so there in the meeting, I use my English.
3. I need more English language and writing.
4. I never had the chance to participate in CEDAC.
5. I would like to participate more.

Q. 6

1. I never participated in one.
2. Never participated
3. I never participate.
4. I never participate.
5. I sign my name a few weeks ago to participate - never participated to writing becuase I cant's speak English well.

Q. 7

1. No work cell in my area.
2. I think ESL class helps me a lot in my job.
3. I never had the chance to participate.
4. I would like to participate, but I don's do this very well.
5. I like to do better haven't any work cells in my area.

Q. 8

1. I never participate
2. I read and understand, but I can't explain good.
3. I never had the chance to participate.
4. Yes, speak English.
5. English class helps me in cross-training in my job.

Q. 9

1. I use ergonomics healthy went on my job (?)
2. I wrote 11 valued ideas so far. I did well.
3. I need write more Enlgish about valued ideas becasue I like give good ideas to help the company group and make more money.
4. writing in English
5. I think English class help me for about valued idea.

Q. 10

1. I use ergonomics in my job and I need more healthy work style.
2. I learn a lot of health style when I participated in ergonomic program.

15 Stats

a. 10 use English with my children

b. 10 use English with my friends and neighbors

c. 10 use English with strangers in market, on street etc.

d. 4 use English at my children's school

e. 11 use English to understand the news

f. 9 use English in my place of worship

g. 2 use English in community activities

16 - Any other comments

I like this program very well and I'm very happy to do the same. This year I'd read and write a lot.

I like to continue to do what we did this year and read more.

My abilities is I use English in my work area, on my job. I feel comfortable.

I am happy that now I can use English that I learned in class, everywhere - to my job or outside, in my own life. I wish that the company and the state will continue the English classes to teach the employees who come from other countries.

Outside the job, I'm more comfortable using English in my family - with neighbors with strangers on the street.

I don't use English very much outside the job. I can do a very good job by talking or communicating with anybody.

I speak more English with American people and with friends.

ESL help me on and off the job. Before this program I can't go alone to the doctor. Now I can do it myself and in many other situations.

Additional Comments

"... Two hours for grammar and two hours for vocabulary and every student must speak the word so that we wll know the way we pronounce wrong or right."

Kennedy Die Castings, Inc.

CASE STUDY:
OUTCOME STUDY AT KENNEDY DIE CASTINGS

Background: Kennedy Die Castings, Inc., Worcester

Kennedy Die Castings, Inc. is a forty-one year old manufacturer of metal castings. It employs about 100 people. Founded by the senior Mr. Kennedy when the die-casting business was in its infancy, the company is now run by his two sons. Like many small manufacturing companies throughout the state, Kennedy Die Castings faces new challenges as it: converts its production methods to include sophisticated, computerized machinery, introduces the team approach to problem-solving known as "quality circles", and institutes SPC to keep costs down and quality up. Management is so committed to making the transition from low to high technology that three years ago it invested in construction of a sleek new plant designed to make the company leading-edge die casters for the next two to three decades.

No longer able to draw on a labor pool of native English-speaking men from the Worcester area trained in die casting techniques by local vocational schools, the company is turning to a new labor pool of limited-English-proficient men who have not necessarily been trained as die casters. About 65 percent of the employees do not have English as their native language. Most of these employees are Southeast Asian, Polish, and Hispanic. Changes in the production process demand that these workers adapt and upgrade their skills to accommodate increasingly sophisticated machinery and team methods of problem-solving. Providing on-site ESL and basic skills instruction is one step toward developing a confident, skilled and adaptable workforce.

The company offers one ESL class, beginner level for 14 students, 4 hours per week for two 20-week cycles. Class is located in the company's cafeteria and is taught in the afternoon by the teacher/curriculum developer. Employees are paid time-and-a-half to attend classes after work. Production demands could not tolerate losing people from regular shifts, even if there was long term value in attending class. Scheduling classes before/after a shift, and paying employees overtime rate solved this problem to everyone's satisfaction.

Description of the evaluation process:

The make-up of the evaluation team: The Kennedy team was composed of a high-level manager, a shop-floor supervisor; a personnel officer (later replaced by a newly-hired human resources officer); one student; and two representatives (one the program coordinator, and the other the program instructor) of the education-providing agency, Quinsigamond Community College. On a day-to-day basis, the work of the project was carried out primarily by the two College representatives, with active assistance in the initial stages by the personnel officer (who left mid-way through the project due to personnel changes in the company). Although the student initially participated actively in the team's work, he also left midway through the project when he was injured and couldn't come to work.

The process: The Kennedy team followed the ten-step process outlined in Section II of the report of the MWEI Cycle 4 Evaluation. As stated above, the lion's share of responsibility for the project was left in the hands of the Quinsigamond Community College representatives.

What was learned about the education program: See Section II, Step 8 of the report of the MWEI Cycle 4 Evaluation for a summary of the Kennedy team's findings and the attached data summaries.

What was learned about the evaluation process: Like many other programs participating in this project, the Kennedy team had to deal with personnel changes, layoffs, and other factors at the company which affected the availability of team members themselves and of those from whom data would be gathered. This led to a reduced momentum in the project, with key steps delayed and a limitation of the amount of data which could be collected. Despite these constraints, the team carried through with the work and produced the findings and plans for follow-up activity described in Steps 8 and 9 in Section II of the report of the MWEI Cycle 4 Evaluation. This persistence was due to the dedication of the education staff and to the ongoing support of senior company management. The senior manager on the team recognized the value not only of the education program in general but also that of this evaluation project. His interest was evident in his active participation in all team meetings and his ongoing willingness to work with -- rather than put unreasonable expectations on -- the team as it tried to find ways to come up with useful data.

Attached data-gathering instruments, summaries of findings, and related documents:

Data-gathering instruments:

- -- Interview guide for supervisors
- -- Student rating scale

Summaries of data:

- -- Results of Supervisor Interviews with Student Performance Level Rating Scale
- -- Tally sheet for student rating scale

This team did not produce a final report.

Kennedy Die Castings:
Preliminary Findings from the Supervisor and Student Questionnaires

Prepared by Paul Jurmo, Consultant
October 1, 1991

Summary of the data:

The raw data for the two uses of the supervisor questionnaire and the August use of the student questionnaire are shown in the attached summaries.

In his two assessments of the students' job-related ablilities, the supervisor indicated the following:

– On average, students fall in the "medium" range of ability.
– They on average improved slightly during the period of June to August in their abilities to handle all of the given job tasks.
– The students showed the strongest abilities in (a) identifying quality defects, (b) functioning as a KDC employee, and (c) comprehending and following directions.
– The students were rated lowest in their abilities to (a) communicate in generall and (b) actively participate in KDC training programs.
– The data could be organized to provide a "ranking" of students. This could be used by instructors to identify which students needed more help and the skills areas which needed particular attention.

In their own self-assessments in August, the students tended to rate themselves on the high end. They semed particularly confident in their abilities to understand their supervisors' directions, tell someone that they don't understand something, tell their supervisors they have a problem, and spot defects.

Lessons Learned:

The instructor who gathered the data felt that the information was instructive in the following ways:

1. The feedback provided by the supervisor in the interviews tended to confirm the teacher's understanding of the students' abilities, but not in all cases. The instructor was able to see how a student might perform well in the classroom but not be transferring that ability to the worksite. This enabled the instructor to clarify where students' skill gaps were and to change the curriculum accordingly.

2. The process demonstrated to the instructor just how complex her job is. At a time when the entire production process is placing greater demands on individual workers, she is being asked to customize instruction to a number of job-related tasks with which she has no direct experience. This has led her to conclude that she needs more technical input from the company if she is to effectively tailor the program to the company's interests within the limited amount of instructional time available. But it is difficult to get that input at a time when the supervisory-level personnel who might give that input are being replaced and also being expected to take on other new responsibilities beyond those required by the education program. .

3. By setting clear goals, the instructor can more effectively monitor progress toward those goals.

Other possible conclusions identified by the consultant:

1. The process of identifying desired program outcomes and developing instruments to measure progress toward those goals has had the following benefits:

* The goal-setting process has clarified what objectives the education program and other company training programs should be focusing on.

* Some useful data have been produced to clarify what impact the program is having, skill areas which need more refinement, and employees who need particular help.

* The program now has evaluation instruments which it can further refine and expand upon. The team might also develop job-related tests (oral or written), simulations, or other means of gathering data about student progress.

* A "team" structure and process has been developed which might serve as a foundation for more-effective planning and evaluation in the future.

2. The process of developing and implementing a new evaluation "system" has been time consuming and made difficult by the limited time which staff could give to the project. Staff were also being asked to perform tasks (for example, design meaningful data-gathering instruments) with which they were unfamiliar. This further slowed down the process as staff tried to develop expertise along the way. Fortunately, other team members -- particularly higher management and the supervisor who completed two sets of questionnaires – were patient and supportive of the process.

3. Given the promising results of this year's attempt to develop new means of measuring program outcomes, program planners should carefully consider how they might build on this year's experience to design a more-efficient "system." One important needed action: Allocate the time and resources needed for at least one team member to (a) develop needed evaluation expertise and to (b) then focus on coordinating future planning and evaluation activities.

4. As students gain new skills, the company needs to be sure that students have opportunities and incentives to put those new skills to best use. In short, the learners must "use it or lose it."

5. The program at Kennedy has much to offer others in the workplace literacy field. Those involved should be encouraged to share their expertise with others trying to develop similar programs elsewhere around the state and nation.

Kennedy Die Castings: Data from Supervisor Questionnaire

Student	Q1-J	Q1-A	Q2-J	Q2-A	Q3-J	Q3-A	Q4-J	Q4-A	Q5a-J	Q5a-A	Q5b-J	Q5b-A	Q5c-J	Q5c-A	Q6a-J	Q6a-A	Q6b-J	Q6b-A	Q7-J	Q7-A	Ave. score	Ave. change
A	4	5	5	6	3	4	5	5	5	5	5	6	3	3	4	5	3	4	4	5	4.45	0.7
B	3	3	4	5	3	5	5	6	3	5	2	5	0	5	3	5	2	4	4	5	3.85	1.9
C	2	4	4	4	4	5	5	5	3	5	3	4	4	4	4	4	2	4	3	5	3.9	1
D	3	4	5	5	4	5	4	5	3	4	4	4	2	5	4	4	3	4	3	5	4	1
E	4	5	4	6	3	6	5	6	3	6	4	4	4	5	4	4	2	4	4	5	4.4	1.3
F	5	6	5	6	4	6	6	5	5	6	5	6	5	4	4	4	4	4	5	5	5	0.4
G	1	3	3	4	2	4	4	5	1	3	1	4	1	3	1	4	1	3	4	3	2.75	1.7
H	2	4	3	5	4	4	5	6	2	5	5	6	3	6	3	5	5	5	3	5	4.3	1.6
I	4	4	5	4	4	4	6	5	2	5	5	4	4	5	2	4	4	4	3	5	4.15	0.7
J	4	3	5	5	5	5	4	5	3	4	4	5	4	6	4	5	4	5	3	7	4.5	1
Ave. score	3.2	4.1	4.3	5	3.6	4.8	4.9	5.3	3	4.8	3.8	4.8	3	4.6	3.3	4.4	3	4.1	3.6	5		
Ave. change		0.9		0.7		1.2		0.4		1.8		1		1.6		1.1		1.1		1.4		

Kennedy Die Castings: Data from Student Questionnaire, 8/91

Student	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Ave. score
A	3	4	4	4	4	4	4	3	3	2	4	3.54545
B	3	4	4	3	4	3	3	3	3	2	4	3.27273
C												
D	2	2	3	4	2	3	3	4		2	3	2.8
E	4	4	4	4	4	4	3	3	4	3	3	3.63636
F	4	4	4	4	4	4	4	4	4	4	4	4
G	2	2	2	3	2	2	3	1	2	3	2	2.18182
H	2	3	2	2	3	2	2	2	3	2	2	2.27273
I	2	4	4	4	4	3	4	4	4	4	3	3.63636
J	4	3	4	4	3	3	4	4	3	4	4	3.63636
Ave. score	2.9	3.3	3.4	3.6	3.3	3.1	3.3	3.1	3.25	2.89	3.22	

Quinsigamond Community College Workplace Education
Interview Guide For Supervisors- Rating Scale

1. What is your assessment of (WIYAO) ____communication skills in general?	0 1 2 3 [✓ 4] 5 6 7
2. WIYAO ____ability to function as a KDC employee?	0 1 2 3 4 [✓ 5] 6 7
3. WIYAO ____ability to interact with work peers?	0 1 2 3 4 [✓ 5] 6 7
4. WIYAO ____ability to recognize and identify quality defects?	0 1 2 3 [✓ 4] 5 6 7
5. WIYAO____ability to participate in group problem-solving on the floor?	
as a listener	0 1 2 [✓ 3] 4 5 6 7
as an active participant	0 1 2 3 [✓ 4] 5 6 7
as an initiator	0 1 2 3 [✓ 4] 5 6 7
6. WIYAO ____level of participation in the most recent KDC training program?	
as listener	0 1 2 3 [✓ 4] 5 6 7
as active participant	0 1 2 3 [✓ 4] 5 6 7
7. WIYAO ____ability to comprehend and follow directions?	0 1 2 [✓ 3] 4 5 6 7

KENNEDY - INTERVIEW GUIDE RATING SCALE
RESULTS JUNE, 1991

QUESTION #1

0/0 OF STUDENTS	SCORE
10%	1
20%	2
30%	3
40%	4
10%	5

QUESTION #2

0/0 OF STUDENTS	SCORE
20%	3
30%	4
50%	5

QUESTION #3

0/0 OF STUDENTS	SCORE
10%	2
30%	3
50%	4
10%	5

QUESTION #4

0/0 OF STUDENTS	SCORE
30%	3
50%	5
20%	6

QUESTION #5

	0/0 OF STUDENTS	SCORE
A	10%	1
	20%	2
	50%	3
	20%	5
B	0/0 OF STUDENTS	SCORE
	10%	1
	10%	2
	30%	4
	40%	5

	0/0 OF STUDENTS	SCORE
C	10%	0
	10%	1
	10%	2
	20%	3
	40%	4
	10%	5

QUESTION #6

	0/0 OF STUDENTS	SCORE
A	10%	1
	10%	2
	20%	3
	60%	4

B	0/0 OF STUDENTS	SCORE
	10%	1
	30%	2
	20%	3
	30%	4
	10%	5

QUESTION #7

0/0 OF STUDENTS	SCORE
50%	3
40%	4
10%	5

Student Rating Scale

1. I speak with my coworkers in English.
   a. I don't do it at all.
   b. I can do it a little.
   c. I do it very often.
   d. I do it all the time.
2. I can tell my supervisor I have a problem.
   a. I don't do it at all.
   b. I can do it a little.
   c. I do it very often.
   d. I do it all the time.
3. I can tell someone that I don't understand.
   a. I don't do it at all.
   b. I can do it a little.
   c. I do it very often.
   d. I do it all the time.
4. I understand the directions my supervisor gives me.
   a. I don't do it at all.
   b. I can do it a little.
   c. I do it very often.
   d. I do it all the time.
5. I can find defects and tell what they are.
   a. I don't do it at all.
   b. I can do it a little.
   c. I do it very often.
   d. I do it all the time.

6. I participate in group problem-solving on the floor,

   a. I don't do it at all.

   b. I can do it a little.

   c. I do it very often.

   d. I do it all the time.

7. I understand what the other people are saying on the floor when we are discussing a quality defect.

   a. I don't do it at all.

   b. I can do it a little.

   c. I do it very often.

   d. I do it all the time.

8. I can tell my supervisor and coworker what the defect is on the floor.

   a. I don't do it at all.

   b. I can do it a little.

   c. I do it very often.

   d. I do it all the time.

9. If I find a defect, I call my supervisor and tell my coworker.

   a. I don't do it at all.

   b. I can di it a little.

   c. I do it very often.

   d. I do it all the time.

10. I can participate in Kennedy Die Castings, Inc. training sessions, and I can undertsand what they are saying.

   a. I don't do it at all.

   b. I can do it a little.

   c. I do it very often.

   d. I do it all the time.

11. If I do not understand something at a training session, I will ask a question.

a. I don't do it at all.

b. I can do it a little.

c. I do it very often.

d. I do it all the time.

____ Student Rating Scale - TALLY SHEET

June 18, 1991
Kennedy Die
Castings, Inc.
Adminstered by
K. Soderstr

1. I speak with my coworkers in English.

10% a. I don't do it at all. ✓

30% b. I can do it a little. ✓✓✓

20% c. I do it very often. ✓✓

40% d. I do it all the time. ✓✓✓✓

2. I can tell my supervisor I have a problem.

0% a. I don't do it at all.

30% b. I can do it a little. ✓✓✓

10% c. I do it very often. ✓

60% d. I do it all the time. ✓✓✓✓✓✓

3. I can tell someone that I don't understand.

0% a. I don't do it at all.

50% b. I can do it a little. ✓✓✓✓✓

0% c. I do it very often.

50% d. I do it all the time. ✓✓✓✓✓

4. I understand the directions my supervisor gives me.

0% a. I don't do it at all.

50% b. I can do it a little. ✓✓✓✓✓

20% c. I do it very often. ✓✓

30% d. I do it all the time. ✓✓✓

5. I can find defects and tell what they are.

10% a. I don't do it at all. ✓

10% b. I can do it a little. ✓

20% c. I do it very often. ✓✓

60% d. I do it all the time. ✓✓✓✓✓✓

. I participate in group problem-solving on the floor.

0% a. I don't do it at all.

40% b. I can do it a little. ✓✓✓✓

20% c. I do it very often. ✓✓

40% d. I do it all the time. ✓✓✓✓

7. I understand what the other people are saying on the floor when we are discussing a quality defect.

0% a. I don't do it at all.

40% b. I can do it a little. ✓✓✓✓

10% c. I do it very often. ✓

50% d. I do it all the time. ✓✓✓✓✓

8. I can tell my supervisor and coworker what the defect is on the floor.

0% a. I don't do it at all.

10% b. I can do it a little. ✓

30% c. I do it very often. ✓✓✓

60% d. I do it all the time. ✓✓✓✓✓✓

9. If I find a defect, I call my supervisor and tell my coworker.

10% a. I don't do it at all.

10% b. I can di it a little. ✓

20% c. I do it very often. ✓✓

70% d. I do it all the time. ✓✓✓✓✓✓✓

10. I can participate in Kennedy Die Castings, Inc. training sessions, and I can undertsand what they are saying.

0% a. I don't do it at all.

40% b. I can do it a little. ✓✓✓✓

20% c. I do it very often. ✓✓

40% d. I do it all the time. ✓✓✓✓

11. If I do not understand something at a training session, I will ask a question.

a. I don't do it at all.

50% b. I can do it a little. ✓✓✓✓✓

20% c. I do it very often. ✓✓

30% d. I do it all the time. ✓✓✓

Boston City Hospital

CASE STUDY:
OUTCOME STUDY AT BOSTON CITY HOSPITAL

Background: Boston City Hospital, Boston

The main facility of this large urban medical center which serves Boston's poor recently underwent major renovations. Old wings were closed, a new one was built; staff was trimmed; and the number of beds was reduced-- all in the service of providing better care to more people. Like other hospitals and health care agencies, Boston City Hospital (BCH) faces a critical shortage of trained workers at the entry, aide, technician, and R.N. levels. Basic skills instruction and a unique study skills course is one part of the hospital's strategy to retain loyal workers and promote them through the ranks. Retaining workers through training and promotion is the only way to maintain quality of service in an economy where trained health care workers are scarce.

However, the workplace education program does not only recruit students from the main facility. It recruits workers from three other facilities through union membership: the Long Island Hospital on Long Island; the Mattapan Hospital in Mattapan, and two nursing homes-- Edgewood and Rest Haven. There are three unions which support the BCH workplace education program: AFSCME 1489; SEIU 1475, and SEIU 285. The high degree of union involvement in this program distinguishes it. So does the amount of travelling that some students do in order to attend their classes. Motivation to travel from one end of Boston to the other comes in part from the promise of promotion. But transportation is often a problem that keeps students from attending classes regularly.

The BCH workplace education program is unique because it offers two very different levels of instruction: the ABE/PRE-ASE/ASE level has one class with 16 students ranging from beginning literacy through secondary level; the pre-technical level has one class with 9 students preparing for post secondary health training programs. The pre-technical class is a study skills class which prepares people for study beyond the the secondary level. Students who want to make the leap to professional training but need to brush up on their study skills find a home here. Each class meets twice a week for three hours for a total of 6 hours a week in two 16-week semesters. The basic academic skills class is open entry/exit. Classes are located in a classroom in the hospital's training wing. Both classes are taught by the teacher/counselor/coordinator.

Tutoring and individualized career counseling time for students in both classes is also available by appointment in the mornings and on Friday afternoon in the teacher/counselor's office.

Description of the evaluation process:

The make-up of the evaluation team: The BCH team suffered serious losses during the course of the project, to the point where it was not clear that a "team" in fact existed by the end of the project. The team originally consisted of the program coordinator/instructor, a representative of the hospital's health education center, a union representative, two supervisory-level nurses, and a nursing assistant who was a student in the program. Subsequently, the coordinator left his job, the health education representative went on maternity leave, and one of the nurse supervisor's was transferred, and the student stopped participating in the team when her supervisor stopped coming. In the last team meeting, only the union representative and one of the supervisory nurses attended, although they showed clear interest and ability to carry on the work of the team in some form.

The process: The BCH team followed the ten step process described in Section II of the report of the MWEI Cycle 4 Evaluation. However, the pace of these steps was not steady due in large part to the attrition described above.

What was learned about the education program: See Section II, Step 8 of the report of the MWEI Cycle 4 Evaluation for a summary of the BCH team's findings.

What was learned about the evaluation process: The team's progress was limited by the attrition of its members as well as by upheavals going on in the hospital at the time of the project. Staff cutbacks and schedule changes meant that not only team members themselves but the students and supervisors the evaluation should have been relying on, were often not available. The loss of the program coordinator midway through the project meant that the vital continuity, contacts, and records which he maintained were no longer under anyone's direct control. This made it that much more difficult to communicate with the students and supervisors who were to serve as informants in the study. And, even before he left midway into the project, the project coordinator was winding down his involvement in the outcome study, as it was of lower priority to him as he attended to the more-immediate tasks required to wrap up his work in the education program. One other limitation was the fact that there was no ongoing involvement in the evaluation team of high-level management. (A high level manager came to the January 10th training but not to subsequent on-site meetings.) This made it difficult for team members to be clear about how the evaluation -- and the education program itself -- fit into the hospital's plans for human resource development. Despite all these limitations, the team did make steps toward clarifying the outcomes which the education program should be achieving. The team hoped to reformulate itself -- this time with high-level management support -- and incorporate these objectives into future education services at the hospital.

Attached data-gathering instruments, summaries of findings, and related documents:

Data-gathering instruments:
- -- Questionnaire for supervisors
- -- Questionnaire for students

Summary of findings:

This team did not produce a final report per se. See Section II, Step 8 of the report of the MWEI Cycle 4 Evaluation for a summary of the BCH team's findings.

QUESTIONNAIRE
TO BE COMPLETED BY EMPLOYEE
PARTICIPATING IN EDUCATION PROGRAM
AT
BOSTON CITY HOSPITAL

5/29/91 DRAFT

Name of Employee ______________________________

Date questionnaire completed ______________________________

Signature of Employee ______________________________

BCH would like to know how successful the education program has been in helping you on and off your job. Could you please fill out this questionnaire, so we can know how to make the program serve you better? Your responses will be kept confidential.

Please rate your ability to carry out the following duties:

Staff meetings:

1. In staff meetings, I understand the topics being discussed and respond when asked questions.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

2. In staff meetings, I speak up with ideas and information of my own.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

3. In staff meetings, I give suggestions about how to improve the operation of my department.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____

____
____
____

Writing on the job:

4. When I am asked to fill out forms (for example, patient charts, inventory forms, or lab requisitions) I write the required information.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: _________________________________
____
____
____

5. When I am asked to fill out forms (for example, patient charts, inventory forms, or lab requisitions) I write in clear and correct English.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: _________________________________
____
____
____

Communicating under pressure:

6. When I have to deal with an emergency, I express myself clearly and constructively.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: _________________________________
____
____
____

7. When I have to deal with a conflict, I express myself clearly and constructively.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: _________________________________
____
____
____

Communicating with supervisors:

8. When communicating with my supervisors, I express myself clearly and constructively.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

Providing high-quality service:

9. I do high-quality work.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

10. I anticipate special needs which come up on my job (for example, for a wheelchair) and make sure that these needs are taken care of.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

11. When I communicate with others (for example, patients or staff members), I speak clearly, politely, and helpfully.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

12. I know my job thoroughly and do not need to be given specific orders.

_____ Doesn't apply.
_____ I can't do this.

_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

Applying the education program to my job:

13. I talk about the classes with other people at work.

_____ I don't do this.
_____ I have done this a few times.
_____ I do this regularly.

Explain your answer: ____
____
____
____

14. I do more reading , writing, and math on my job.

_____ I don't do this.
_____ I have done this a few times.
_____ I do this regularly.

Explain your answer: ____
____
____
____

15. I read my union bulletins.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

16. If I were asked to write an article for the union bulletin:

_____ I wouldn't know how to do it.
_____ I could do it, but would be reluctant to do it.
_____ I would do it.

Explain your answer: ____
____
____
____

17. If I were asked to speak about the classes at a union meeting or to another group:

_____ I wouldn't know how to do it.

_____ I could do it, but would be reluctant to do it.
_____ I would do it.

Explain your answer: ____
____
____
____

Interest in hospital work:

18. I am interested in working in other jobs in hospitals, and I look into job opportunities in this field.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

My rights on the job:

19. I understand my rights on the job (for example, discrimination, pay rates, benefits) and make certain that they are respected.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

Further education, training, and job opportunities:

20. Please check all that apply to you:

_____ I have recently applied for a GED program.
_____ I have recently applied for the Pre-Tech Program.
_____ I have recently applied for college.
_____ I have recently applied for a technical training program.
_____ I have recently applied for a different job.

Explain your answer: ____
____
____

Off the job:

21. When I'm not at work, I talk to other people about the education program.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

22. When I'm not at work, I use more reading, writing, and math in my daily life (for example, getting a loan, applying for a job).

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

23. (For those employees with school-age children): When I'm at home, I help my children with their homework.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

24. When I'm at home, I do my own homework with the help of family members or friends.

_____ Doesn't apply.
_____ I can't do this.
_____ I do this better than I did a year ago.
_____ I have always been able to do this well.

Explain your answer: ____
____
____
____

Additional comments:

25. Please add any other comments, information, concerns, or examples about your abilities on or off the job which you think we should know about:

Thank you for your cooperation in filling out this questionnaire.

QUESTIONNAIRE
TO BE COMPLETED BY
SUPERVISOR
ABOUT
EMPLOYEE PARTICIPATING IN EDUCATION PROGRAM
AT
BOSTON CITY HOSPITAL

5/29/91 DRAFT

Name of Supervisor ______________________________

Name of Employee ________________

Date questionnaire completed _______________________

Signature of Supervisor _____________________________________

BCH would like to know what impact the education program has had on employees' job performance and personal development. Because you are familiar with the above employee's work, we ask that you please fill out this questionnaire. Results will be kept confidential.

Please rate the above employee's abilities to perform the following job-related duties:

Participation in staff meetings:

1. In staff meetings, the employee responds to the topic being discussed by clearly stating relevant information and ideas.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

2. In staff meetings, the employee takes the initiative by raising useful issues and volunteering information.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

3. In staff meetings, the employee gives concrete suggestions about how to improve department operations.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

Use of documents:

4. When filling out records (for example, patient charts, inventory forms, lab requisitions) the employee provides accurate and appropriate information.

382

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

5. When filling out documents (for example, patient charts, lab requisitions, inventory forms) the employee uses clear, grammatically-correct English.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

Communicating in stressful situations:

6. When dealing with stressful situations (e.g., emergencies), the employee expresses her/himself clearly and constructively.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

7. When dealing with emotionally-charged conflicts, the employee expresses her/himself clearly and constructively.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

Communicating with supervisors:

8. When communicating with supervisors, the employee communicates clearly and constructively.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

Employee's impact on quality of department's services:

9. The employee generally does high-quality work.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

10. The employee anticipates special needs (e.g., a wheelchair) and takes the initiative to see that they are taken care of.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

11. When communicating with others (for example, patients or staff members), the employee acts in a professional manner, speaking clearly, politely, and helpfully.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

12. The employee is thoroughly knows his/her job and does not need constant supervision.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

Relating the education program to the job:

13. The employee applies information and skills acquired in the education program in the performance of her/his job.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

Interest in medical work:

14. The employee demonstrates curiosity and interest about her/his current job.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

15. The employee demonstrates an interest in pursuing job opportunities within the medical field.

_____ Doesn't apply.
_____ Can't do this.
_____ Can do this better than one year ago.
_____ Has always done this well.

Additional comments:

16. Overall, how would you rate the employee's ability to handle the above tasks during the past month?

_____ Has shown no significant improvement. (If you check this one, skip Question 17.)
_____ Has shown some small improvement.
_____ Has shown great improvement.

17. If the employee's performance has improved, to what do you attribute the improvement? (Check all that apply, ranking them in order of impact on the employee, with "1" having the most impact.)

_____ Has learned from on-the-job experience.
_____ The education program has helped.

____ Has learned from other experience. (Please specify.)

18. Please add any other comments, information, concerns, or examples about this staff member's job-related thinking and communication skills which you think we should know about:

Thank you for your cooperation in filling out this questionnaire.

Appendix B: Evaluating the Outcome Evaluation

EVALUATING THE EVALUATION: ASSESSING THE OUTCOME STUDY CONDUCTED FOR THE MASSACHUSETTS WORKPLACE EDUCATION INITIATIVE, 1991

As a participant in this year's outcome study (conducted by either Laura Sperazi or Paul Jurmo), please complete the following questions. This will help the Initiative to determine what role evaluation should play in future workplace education programs.

Name ____

1. My team worked with (circle one) Laura Sperazi/Paul Jurmo.

2. I understood the goals of this outcome study project to be: (please describe the goals): ____

3. How well did the consultant explain these goals to your team? ______

4. How fully did your team achieve the above goals? ________________

5. Did the outcome study achieve any additional results (either positive or negative)? (Please describe.)______________________________________

6. Was the outcome study process useful? (Explain your answer) ______

7. Did your team gain new knowledge or skills as a result of going through the outcome study process? (Explain your answer.) ____________________

____

____

____

____

8. What might the MWEI do in the future to improve the assessment of outcomes of your workplace education program? Please tell us how useful you think the following activities might be, and then add your own comments.

- Offer training in how to computerize data at the beginning of the outcome evaluation period.____

____

- After Phase I (identifying outcomes) of the outcome evaluation is completed, circulate a grid to all the evaluation teams of the various outcomes which programs identified, so that teams can compare and contrast their outcomes with those of other teams. ______________________________________

____

- After Phase I (identifying outcomes) of the outcome evaluation is completed, convene a meeting of representatives from the various evaluation teams so that teams can compare and contrast their outcomes with those of other teams.

____

____

- Build the time required to conduct a meaningful evaluation more clearly into the MWEI RFP so that education staff, company representatives and union representatives are prepared for the work they are asked to do.__________

____

____

- Convene a workshop or seminar day on outcome evaluation which is separate from the work done on-site, and which interested members of the evaluation teams could attend-- a "thinking through the issues" workshop.

____

____

____

- Provide exercises/instruction in team building for the evaluation teams which would help the group to work together a group. ______________________

____

- Other things the MWEI might do in the future to help you assess the outcomes of your employee education program? ____________________________

____

____

____

____

9. Please list any other comments, suggestions, ideas you might have related to outcome evaluation. ______________________________

____

____

____

____

Thank you for your help. Please return this questionnaire by September 3, 1991 to:

Laura Sperazi
Evaluation Research
1589 Centre Street
Newton Highlands, MA 02160
617/527-6081

Appendix C: Curriculum Study Questionnaires and Related Documents

References

"Introduction to Kennedy Die Castings, Inc. Curriculum", a three-page introduction written by program staff, is available from the Workplace Education Program coordinator at Quinsigamond Community College

Curriculum Development at the South Cove Manor Nursing Home by Marianne Caldwell, Hsiao Chang and Johan Uvin (Draft Manuscript) 1991

"English at Work - A Toolkit for Teachers", by Deborah Barndt, Mary Ellen Balfiore and Jean Handscombe. New Readers Press, 1991

Resources for Thinking/Study Skills

'Learning to Learn" course at Roxbury Community College

Methods of Inquiry by Marcia Heiman and Joshua Slomianko, Learning to Learn, Inc. 28 Penniman Rd., Allston., MA 02134 1988

Critical Thinking Skills for the Quality Workforce Learning to Learn, Inc. 1991

WORKPLACE EDUCATION INITIATIVE CURRICULUM STANDARDS

1. PHILOSOPHY/APPROACH AND GOALS

1.1 There is a curriculum/instructional philosophy/approach.

1.2 The program's educational goals are clear to teachers, students, and the evaluation team.

It is clear to students, teachers, and others where the curriculum is supposed to help students end up.

2. CURRICULUM

2.1 There is a curriculum development model.

2.2 The curriculum development model is a process of helping student/workers (as a group or individually) articulate their needs, goals and concerns and addressing these through instruction.

2.2.1 This process is described in print.

2.2.2 Teachers, students, and the evaluation team are all able to describe this process clearly.

2.2.3 This process is ongoing.

2.2.4 It goes back and forth between the written design, actual implementation, and revision of the design.

2.3 Curriculum is tailored to the worksite and to students' "life skills" (and work) needs.

2.4 Teachers, students and partners (company, union, education provider) are involved in curriculum development.

- 2.4.1 Teachers are involved in curriculum development.
  - 2.4.1.1 Teachers are paid for their involvement.
- 2.4.2 Students are involved in determining curriculum objectives.
- 2.4.3 Partners review curriculum regularly.

2.5 The curriculum is related to the work context. It uses this context for students' learning objectives.

- 2.5.1 Student/workers' language/grammar needs at work.
- 2.5.2 Student/workers' other basic skills needs at work.
- 2.5.3 Work-related issues.
- 2.5.4 Union/labor issues/concerns.
- 2.5.5 Student/worker empowerment.

2.6 The curriculum is related to students' lives outside work. It uses this as the context for students' learning objectives.

- 2.6.1 Basic skills needs such as helping children with school work, writing notes to a child's teacher, reading to children, reading the Bible, doing income tax, etc.)

        2.6.2 Language/grammar needs outside work

        2.6.3 Life skills

        2.6.4 Individual growth

        2.6.5 Family issues

        2.6.6 Community issues

2.7 The curriculum addresses some or all of the following skills:
    2.7.1 Listening
    2.7.2 Speaking
    2.7.3 Reading
    2.7.4 Writing
    2.7.5 Computation
    2.7.6 Interpreting skills
    2.7.7 Life skills/survival skills
    2.7.8 Teamwork/cooperation
    2.7.9 Ability to work independently
    2.7.10 Critical thinking
    2.7.11 Problem solving
    2.7.12 Learning about others' cultures
    2.7.13 Management skills
    2.7.14 Secondary subject areas
    2.7.15 Grammar

2.8 The curriculum addresses the issue of different levels of skills in the classroom.

2.9 The curriculum addresses the student/worker's understanding of the company as a whole, and how its parts inter-relate, its operations, and how the student/worker's part relates to the whole.

3. INSTRUCTIONAL METHODS AND ACTIVITIES

3.1 There is a variety of methods and activities.

3.2 ESL literacy and language practices are integrated in the classroom.

3.3 IN ESL classes, real life language is encouraged.

3.4 Teaching and learning approaches are centered around key events and problems, along with everyday activities in students' work, homes or community environments.

3.5 Instruction addresses student/workers' understanding of the company as a whole and how its parts inter-relate, its operation, and how the student/worker's part relates to the whole.

3.6 Student/workers have a choice over learning activities.

3.7 Student/workers are not mostly filling out workbook pages.

3.8 Methods address student/worker empowerment.

3.9 Methods are tailored to the worksite and to students' "life skills" (and work) needs.

4. INSTRUCTIONAL MATERIALS

4.1 There are some teacher-made materials.

4.2 Instructional materials have been evaluated by teachers (and others) for:

  4.2.1 Being based on adult subject matter
  4.2.2 Ethnicity issues
  4.2.3 Gender issues

4.3 Some of the instructional materials are tactile .

4.4 Some of the instructional materials are non-print.

4.5 Student/workers have a choice over materials they use.

4.6 Materials are based on adult subject matter.

5. PROGRAM DESIGN ISSUES

5.1 Class teacher/student ratios are appropriate.

5.2 There are sufficient instructional hours/week.

5.3 There is an I.E.P.

  5.3.1 It includes student learning objectives.

  5.3.2 It is derived, in part, from the initial assessment.

  5.3.3 It includes information about students' preferred learning styles.

5.4 Instruction is self-paced, following the objectives in the I.E.P.

5.5 Some instruction is group-paced.

5.6 There are incentives for students to make progress.

  5.6.1 There are extrinsic incentives such as higher wages, bonuses and promotions.

  5.6.2 There are intrinsic incentives such as public recognition of achievement, appreciation, and increased responsibilities.

5.7 Learning differences/disabilities are identified and addressed in the program.

5.8 Increasing student/workers' self confidence is addressed in the education program.

5.9 (For ABE programs) the issue of economic class, and its relationship to self confidence and learning progress is addressed.

5.10 Teachers' class preparation time is paid for.

5.11 There are regular times for staff meetings.

  5.11.1 These include time for curriculum development work.

5.12 Staff are involved in educational program design.

5.13 Program Coordinator teaches.

5.14 Program Coordinator does curriculum development.

5.15 Relationships with the learning provider, company, and union are supportive.

6. STAFF ORIENTATION AND STAFF DEVELOPMENT

6.1 New teachers attend orientation.

  6.1.1 Orientation includes familiarizing them with the work objectives, routines, values concerns, personnel,and terms of the company.

  6.1.2 It includes familiarizing them with the objectives, structure, personnel, terms and concerns of the union.

6.2 Staff attend ongoing training and staff development activities.

  6.2.1 Staff are paid for staff development time.

6.2.2 Staff development is done in relation to curriculum development.

6.2.3 Staff development is related to teacher evaluation.

6.2.4 It includes cultural sensitivity and awareness.

6.3 Staff network/coordinate with people in other workplace education programs and other literacy programs.

7. IMPACT OF THE CURRICULUM ON WORK, THE COMPANY AND UNION

7.1 The contents of the curriculum have an impact on the company or the union or company or union culture (practices, policies, and/or priorities).

7.2 Language use in the classroom is related to language used in work.

7.2.1 Work-related language needs are brought into the classroom curriculum and instruction.

7.2.2 Language (vocabulary, syntax, pronunciation, etc.) learned in the classroom is used in the workplace.

8. INSTRUCTIONAL SETTING

8.1 The physical space is:

8.1.1 comfortable
8.1.2 Reasonably sized
8.1.3 Well-lighted
8.1.4 Cheerful
8.1.5 A place which establishes a sense

of belonging

8.2 The furniture is:

- 8.2.1 adult-sized
- 8.2.2 arranged comfortably

PROTOCOLS

DOCUMENT REVIEW CHECKLIST

DOCUMENTS	AVAILABLE?	RECEIVED?	COMPLETED?
1. Curriculum			
2. Instructional materials			
3. Assessment instruments			
4. Staff orient. materials			
5. Individual Learning Plan			
6. Program Brochure(s)			
7. Others(?)			

Review of fact sheet

Review of brochures and program products

Review of curriculum

Review of Instructional materials

Review of Assessments

Review of Staff Orientation Materials

Review of I.E.P.

PHILOSOPHY/APPROACH AND GOALS

o What is the education program's philosophy or instructional approach? (CURRICULUM, TEACHER ORIENTATION MATERIALS)

o What are its goals? Where is the curriculum supposed to help students end up?

1. CURRICULUM

o What is its model, especially with regard to:

  o curriculum development,

(Do program staff view curriculum development as a process of helping student/workers (as a group and/or individually) articulate their interests, needs, goals, and concerns and addressing these? If so, is the process described in print?

o Is there evidence that the curriculum is tailored to the worksite and work needs?

o Is there evidence that the curriculum is tailored to meet students' life skills needs?

Sources of Curriculum Goals

o To what degree does the curriculum address student/worker needs/objectives which grow out of:

  o Language/grammar needs at work

  o Other basic skills needs at work

  o Issues at work

  o Union/Labor issues

    - Student/worker empowerment

    - Basic Skills Needs in Worker/students' Lives Outside Work (Children's' schoolwork, writing notes to a child's teacher, reading to children, reading the Bible, doing income tax, etc.)

    - Language/grammar needs at work or outside work

    - Life skills

    - Individual growth

    - Family issues

    - Community issues

- What skills are addressed in the curriculum:

  Listening? speaking? reading? writing? computation? Interpreting skills? life skills/survival skills Team-work/co-operation? Ability to work independently? Critical thinking? Problem-solving? (What does this mean in this context? Task analysis? Giving instructions orally and in writing? Something else?) How to learn about others' cultures? Management skills? Others? Secondary level subject areas? (which ones?) Grammar

- Does the curriculum address the issue of different levels of skills in the classroom? If so, how?

- Does the curriculum address the student/workers' understanding of the company as a whole and how its parts inter-relate, its operations, and how the student/worker's part relates to the whole?

- What appear to be the major areas of innovation of the curriculum?

- What appear to be the major problems or limitations of the curriculum?

2. INSTRUCTIONAL MATERIALS

o Are there teacher-made materials?

o Are the materials based on adult subject matter?

o Are the materials sensitive to issues of:ethnicity?
gender?

o Are some of the materials tactile?

o Are some non-print?

3. I.E.P.

o Is there is an I.E.P. Does it include student learning objectives? Is it directly related to the initial assessment? Does it include information about the student's learning styles?)

PROGRAM COORDINATOR INTERVIEW PROTOCOL

COORDINATOR BACKGROUND

- o What kinds of work responsibilities do you have? Administration? Teaching? Curriculum Development? Others?

PHILOSOPHY, GOALS, MODEL, APPROACH

- o What is your education program's philosophy or instructional approach?
- o What are its goals? "Where is the curriculum supposed to help students end up?"
- o What is its model, especially with regard to:
  - o curriculum development;

    Do program staff view curriculum development as a process of helping student/workers (as a group and/or individually) articulate their interests, needs, goals, and concerns and addressing these? If so, is the process described in print? Can the teacher(s) describe the process? Can others? Who?
  - o teaching;
  - o selection of materials and methods;
  - o student involvement in decision-making (if this is not answered by the question "What is its philosophy?")
- o What do student/workers need to do in the program in order to get something from it?

CURRICULUM AND CURRICULUM DEVELOPMENT PROCESS

- How was the curriculum created?

  Which people have been involved? In what ways? And to what degree? Teachers? Education Coordinator? Employer? Union Rep.? Supervisors? Student/workers? Others?

- Is curriculum development an ongoing process that goes back and forth between the written design and the actual implementation and revision of the design?

  If so, Who is involved in the process of curriculum development/revision now?

  How much time each week/month is spent on this by each of those involved? Is this paid time?

  Do the partners review the curriculum? When?

Sources of Curriculum Goals

- To what degree does your program use as the context for students' learning objectives:
  - Language/grammar needs at work
  - Other basic skills needs at work
  - Issues at work
  - Union/labor issues/concerns
  - Student/worker empowerment
  - Basic skills needs in worker/students' lives outside work (children's' schoolwork, writing notes to a child's teacher, reading to children, reading the Bible, doing income tax, etc.)
  - Language/grammar needs outside work

    - Life skills
    - Individual growth
    - Family issues
    - Community issues
  - Other?

- To what degree do student/workers have choice over curriculum objectives?

- If the curriculum is related to the work context, how exactly is this relating done? (e.g. did/does the teacher go to the shop floor and collect realia? Other ways?)

- What skills are addressed in the curriculum:

  Listening? speaking? reading? writing? grammar? computation? Interpreting skills? life skills/survival skills? Team-work/co-operation? Ability to work independently? Critical thinking? Problem-solving? (What does this mean in this context? Task analysis? Giving instructions orally and in writing? Something else?) How to learn about others' cultures? Management skills? Secondary level subject areas? (which ones? Others?

- Does the curriculum address the issue of different levels of skills in the classroom? If so, how?

- How is the curriculum organized? IF ESL, Is the curriculum grammar-based, skills-based, organized by life skills or work skills competencies?

- Does the curriculum address the student/workers' understanding of the company as a whole and how its parts inter-relate, its operations, and how the student/worker's part relates to the whole?

o What do you consider the major areas of innovation in your curriculum?

o What do you consider the major problems or limitations of your curriculum?

INSTRUCTIONAL METHODS AND ACTIVITIES

o What methods, activities, practices, and/or teaching/learning strategies are used? Presentation/lecture? Discussion? Drill and practice? Case studies? Co-operative activities? Dialog journals? Jazz chants? Picture stories? Use of videos? Vocabulary developed from on-site responsibilities? Reading comprehension derived from family stories? Simulation/role-plays? CAI? Modelling skills? Others?

o (If ESL), are language and literacy practices integrated in the classroom? Describe.

o (If ESL), is "real life language" encouraged? Describe.

o Are the methods and activities tailored to the worksite and work needs?

o Are the methods and activities tailored to students' life skills needs?

o To what degree do student/workers have choice over Learning strategies/activities?

o How are students grouped? By objectives? By culture and language? By educational level/ability? By immediate work partners?

o Does instruction address the student/workers' understanding of the company as a whole and how its parts inter-relate, its operations, and how the student/worker's part relates to the whole?

INSTRUCTIONAL MATERIALS

o What materials are used?

Print and non-print? Pictures? Tactile?

o Where do they come from? Teacher-made? Commercial? Both?

o How are they evaluated? Who evaluates them?

Are the materials screened to make sure they are based on adult subject matter?

Are materials screened for ethnicity issues?

Are materials screened for gender issues?

Are materials screened for other purposes?

o To what degree do student/workers have choice over materials the class uses?

o To what degree do student/workers have choice over materials they, as individual learners, use?

PROGRAM DESIGN ISSUES

o Does the program use I.E.P.s? If so, do they include student learning objectives? Are they derived, in part, from the initial assessment? Do they include information about the student's preferred learning styles?

o To what degree is the program self-paced, following the objectives in an I.E.P., and to what extent group-paced?

o Are there specific, structured incentives for student learning progress: higher wages, bonuses, promotions, public recognition of achievement, appreciation, increased responsibilities, or others) If so, what are they?

o Does the program address the issue of preferred learning styles (

collaborative, independent, dependent)? If so, how?

o Does the program address learning differences/disabilities? If so, how?

o Does the curriculum or instruction address the issue of increasing student/workers' self confidence? If so, how?

o Is staff preparation time paid for?

o Are there regular times set aside for staff meetings? For what purposes? Collaborate to write curriculum? Educational Program Design?

o Are there other ways in which staff collaborate to write curriculum or meet to review program design?

STAFF ORIENTATION AND STAFF DEVELOPMENT

o How are teachers oriented to the program?

o Does the orientation include familiarizing them with the work objectives, personnel, structure, routines, values and terms of the business/industry (company and union) involved in the partnership?

o What paid staff development is there? Is it related to curriculum development? Is it structured? How? Is it connected to teacher evaluation? If so, how? Does it include cultural sensitivity/awareness?

o Are there paid staff development opportunities outside the program (state and national conferences?) If so, give examples.

o Do staff in the program network/coordinate with other workplace education programs? Other literacy programs? If so, give examples.

IMPACT OF THE CURRICULUM ON WORK, COMPANY, AND UNION

o Is there evidence that what is included in the curriculum has impact on the company or union: on company or union culture, i.e. practices, policies, or priorities? If so, describe.

o How is language use outside the classroom (on the "shop floor") connected with language used in the classroom?

TEACHERS' QUALIFICATIONS

o What knowledge, skills and experiences are particularly useful for workplace ed. teachers to have?

PROGRAM PRODUCTS

o Are there any program products? Published student writing? Newsletters? Videotapes? Community-related projects?) If so, what?

INFORMING OTHERS ABOUT THE PROGRAM

o How do you keep people informed about what is going on the program?

CLASSROOM OBSERVATION

o Class size: How many students are present? How many teachers? Is teacher-student ratio appropriate to type and level of services?

o Is physical setting appropriate (enough space, privacy, appropriate furniture, comfortable temperature, enough light, "learner-centered", cheerful) ?

o Do methods and materials match adults' learning styles?

o How are ESL literacy and language practices integrated?
Is real-life language encouraged? or do students mostly fill out workbook pages?

STUDENT/WORKERS INTERVIEW

- Are classes provided at convenient times and places?

- Are you treated as a full partners in the education process?

- What are the curriculum's goals? Where is the curriculum supposed to help students end up?

- Does your curriculum include:

    - Language and/or other basic skills needs at work

    - Issues at work

    - Basic Skills Needs in Worker/students' Lives Outside Work (Children's' schoolwork, writing notes to a child's teacher, reading to children, reading the Bible, doing income tax, etc.)

    - Union/Labor issues

    - Language/grammar needs at work or outside work

    - "Life skills"

  - Other?

- To what degree are students involved in decision-making about the curriculum?

- To what degree do students have choice over Learning strategies?

- To what degree do students have choice over materials?

- Does the curriculum help you better understand the company as a whole and how its parts inter-relate, its operations, and how your part relates to the whole?

- How do you know if you are accomplishing your objectives?

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o How is language use outside the classroom (on the "shop floor") connected with language used in the classroom?

o How are ESL literacy and language practices integrated? Is real-life language encouraged? or do you mostly fill out workbook pages?

o What knowledge, skills and experiences do you feel are particularly useful for workplace ed. teachers to have?

EVALUATION TEAM GROUP INTERVIEW

PHILOSOPHY, GOALS, MODEL, APPROACH

- What is your education program's philosophy or instructional approach?

- What are its goals? Where is the curriculum supposed to help students end up?

CURRICULUM

- How was the curriculum created? Which partners been involved? (Teachers? Education Coordinator? Employer? Union Rep.? Supervisors? Student/workers? Others?)If so, in what ways? And to what degree?

Sources of Curriculum Goals

- To what degree does your program use as the context for students' learning objectives:

    - Language and/or other basic skills needs at work

    - Issues at work

    - Basic Skills Needs in Worker/students' Lives Outside Work (Children's' schoolwork, writing notes to a child's teacher, reading to children, reading the Bible, doing income tax, etc.)

    - Union/Labor issues

    - Language/grammar needs at work or outside work

    - "Life skills"

- Other?

o To what degree do student/workers have choice over curriculum objectives?

o Does the curriculum or instruction address the student/workers' understanding of the company as a whole and how its parts inter-relate, its operations, and how the student/worker's part relates to the whole?

o What do you consider the major areas of innovation in your curriculum?

o What do you consider the major problems or limitations of your curriculum?

o What are the curriculum components you want/need most help with?

IMPACT OF THE CURRICULUM OUTSIDE THE CLASSROOM

o Is there evidence that what is included in the curriculum has impact on the company or union: on company or union culture, i.e. practices, policies, or priorities?

o How does the curriculum/classroom respond to learner motivations, both extrinsic (higher wages, bonuses, promotions) and intrinsic (public recognition of achievement, appreciation, self-esteem, increased responsibilities)?

o Does the curriculum or instruction address the issue of increasing student/workers' self confidence? If so, how?

o How is language use outside the classroom (on the "shop floor") connected with language used in the classroom?

o How are teachers oriented to the program? Does the orientation include familiarizing them with the work objectives, routines, values and terms of the business/industry involved in the partnership?

o What knowledge, skills and experiences are particularly useful for workplace ed. teachers to have?

PROGRAM PRODUCTS

- Are there any program products? Published student writing? Newsletters? Videotapes? Community-related projects?)

INFORMING OTHERS ABOUT THE PROGRAM

- How do you keep people informed about what is going on the project?

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TEACHER INTERVIEW PROTOCOL

TEACHER BACKGROUND

o What are your major responsibilities?

Teaching?

Curriculum development?

Assessment?

Others?

o (Show class schedule.)

Does this accurately reflect the number and kind of classes you are teaching now? (If not, correct.)

o Are there others who assist you? (aides, volunteers, support staff?) If so, who?

PHILOSOPHY, GOALS, MODEL, APPROACH

o What is your education program's philosophy or instructional approach?

o What are its goals? Where is the curriculum supposed to help students end up?

o What is its model, especially with regard to:

o curriculum development

o Do you view curriculum development as a process of helping student/workers (as a group and/or individually) articulate their interests, needs, goals, and concerns and addressing these?

o If so, is this process described in print?
(If so, get a copy.)

o If so, can you describe the process?

o teaching:

o selection of materials and methods:

o student involvement in decision-making(if this is not answered by the question "what is its philosophy")

o What do student/workers have to do in the program in order to get something from it?

CURRICULUM AND CURRICULUM DEVELOPMENT PROCESS

o Have you been involved in creating the curriculum? If so, in what ways? And to what degree?

o Who else is involved with curriculum development? Student/workers? Coordinator? Supervisors? Union? Others?

o Is the curriculum development process ongoing?

o Is curriculum development an ongoing process that goes back and forth between the written design, actual implementation, and revision of the design?

o If so, how much time do you spend each week/month on this?

o Are you paid for your curriculum development time? All of it or some of it?

Sources of Curriculum Goals

o To what degree does your program use as the context for students' learning objectives:

o Language/grammar needs at work

o Other basic skills needs at work

o Issues at work

o Union/labor issues/concerns

o Student/worker empowerment

o Basic Skills Needs in Worker/students' Lives Outside Work (Children's' schoolwork, writing notes to a child's teacher, reading to children, reading the Bible, doing income tax, etc.)

o Language/grammar needs outside work

o Life skills

o Individual growth

o Family Issues

o Community Issues

o Other?

o To what degree do student/workers have choice over curriculum objectives?

o If the curriculum is related to the work context, how exactly is this relating done? (e.g. did/does the teacher go to the shop floor and collect realia? Other ways?)

o What skills are addressed in the curriculum: listening? speaking? reading? writing? grammar? computation? interpreting skills? life skills/survival skills? team-work/co-operation? ability to work independently? critical thinking? problem-solving? (What does this mean in this context? Task analysis? Giving instructions orally and in writing? Something else?) how to learn about others' cultures? management skills? secondary level subject areas? (which ones?)

others?

o Does the curriculum address the issue of different levels of skills in the classroom? If so, how?

o How is the curriculum organized? If ESL, is the curriculum grammar-based, skills-based, organized by life skills or work skills competencies?

o Does the curriculum address the student/workers' understanding of the company as a whole and how its parts inter-relate, its operations, and how the student/worker's part relates to the whole?

o What do you consider the major areas of innovation in your curriculum?

o What do you consider the major problems or limitations of your curriculum?

INSTRUCTIONAL METHODS AND ACTIVITIES

o What methods, activities, practices, and/or teaching/learning strategies do you use in your classes?

presentation/lecture?

discussion?

drill and practice?

case studies?

co-operative activities?

dialog journals?

jazz chants?

picture stories?

videos?

vocabulary developed from on-site responsibilities?

reading comprehension derived from family stories?

simulation/role-plays?

CAI?

Modelling skills?

Others?

o (If ESL) are language and literacy practices integrated in the classroom? Describe,

o (If ESL) is "real life language" encouraged? Describe.

o Are the methods and activities tailored to the worksite and work needs?

o Are methods and activities tailored to students' life skills needs?

o To what degree do student/workers have choice over Learning strategies/activities?

o Does instruction address the student/workers' understanding of the company as a whole and how its parts inter-relate, its operations, and how the student/worker's part relates to the whole?

INSTRUCTIONAL MATERIALS

o What materials are used? Print and non-print? Pictures? Tactile?

o Where do they come from? Teacher-made? Commercial? Both?

o How are they evaluated? Who evaluates them?

Are the materials screened to make sure they are based on adult subject matter?

Are materials screened for ethnicity issues?

Are materials screened for gender issues?

Are materials screened for other purposes? (What?)

o To what degree do student/workers have choice over materials the class uses?

o To what degree do they have choice over materials they, as individual learners, use?

PROGRAM DESIGN ISSUES

o Do you use I.E.P.'s? If so, do they include student learning objectives? Are they derived, in part, from the initial assessment? Do they include information about the student's preferred learning styles?

o To what degree is the program self-paced, following the objectives in an I.E.P., and to what extent group-paced?

o Are there specific, structured incentives for student learning progress: higher wages, bonuses, promotions, public recognition of achievement, appreciation, increased responsibilities, or others) If so, what are they?

o Does the program address the issue of preferred learning styles (collaborative, independent, dependent)? If so, how?

o Does the curriculum or instruction address the issue of increasing student/workers' self confidence? If so, how?

o Is your staff preparation time paid for?

o Are there regular times set aside for staff meetings? For what purposes? Collaborate to write curriculum? Educational Program Design?

STAFF ORIENTATION AND STAFF DEVELOPMENT

o How were you oriented to the program?

o How are other teachers oriented?

o Does orientation include familiarizing teachers with the work objectives, personnel, structure, routines, values and terms of the business/industry (company and union) involved in the partnership?

o What ongoing staff development/training is there? Is it paid time? Is it related to curriculum development? Is it structured? How? Is it connected to your evaluation? If so, how? Does it include cultural sensitivity/awareness?

o Are there paid staff development opportunities outside the program (e.g. state and national conferences?) If so, give examples.

o Do you and/or other staff in the program network/coordinate with other workplace education programs? Other literacy programs? If so, give examples.

IMPACT OF THE CURRICULUM ON WORK, COMPANY, AND UNION

o Is there evidence that what is included in the curriculum has impact on the company or union: on company or union culture, i.e. practices, policies, or priorities? If so, describe.

o How is language use outside the classroom (on the "shop floor") connected with language used in the classroom?

> Are work-related language needs brought (by students, supervisors, by you) into the classroom?
>
> Are language skills (vocabulary, syntax, pronunciation, etc) learned in the classroom used in the workplace?

TEACHERS' QUALIFICATIONS

o What knowledge, skills and experiences are particularly useful for workplace ed. teachers to have?

PROGRAM PRODUCTS

o Are there any program products? Published student writing? Newsletters? Videotapes? Community-related projects?) If so, what?

INFORMING OTHERS ABOUT THE PROGRAM

o How do you keep people informed about what is going on the project?

TABLE A

SKILLS ADDRESSED IN CURRICULUM

Item	Kennedy/Quinsigamond	South Cove Manor/ C.A.C.A.
Listening	×	×
Speaking	×	×
Reading	×	×
Writing	×	× (not a priority; journal writing newsletter)
Grammar	× Sometimes drill & practice as a supplement	× (as part of language learning--in teachers' heads-not a starting point. Addressed in context.
Computation	× Some, depending on the company's needs. Measurement	× (but not a priority)
Interpreting skills	Not much	no
Life skills/survival skills	×	× (but not a priority)
Team-work/co-operation	×	Not in curriculum, but sometimes in class it is addressed
Ability to work independently	×	×
Critical thinking and Problem solving	× Included in some activities	× (Analytical thinking)
How to learn about others' cultures	×	× (This is a goal of the work-shops)
Management skills	× With S.P.C. to some extent especially sequencing	?
Secondary level subject areas	No.	No
Others	Co-operative learning skills Peer-teaching	Metacognitive skills - what kind of learners they are; exposing workers to different kinds of learning activities, so that they choose those that they find work best for them)

Hampden Papers, Inc./ ILI	Boston City Hospital
x	x
x (a little)	x
x	x
x	x
x	x
x	x
No	No
x	x (second level priority)
No	x
x (self reliance)	x
x (to some degree. Want to do more) (prob. solv. mostly with math)	x
x (but not recently. Did this with group learning photography	x
No	x (self-management)
X (GED subjects)	x (science, research, study skills) note taking skills, test taking skills

TABLE B

INSTRUCTIONAL METHODS AND ACTIVITIES	Kennedy/ Quinsigamond	South Cove/C.A.C.A.
Presentation/lecture	Not much	
Discussion	x	x
Drill and Practice	x Some	x (incl. the use of flashcards to teach pronunciation)
Case studies	x	
Co-operative activities	x This is emphasized.	
Dialog Journals	Plan to use in class coming up. Currently use "what we did today" log. Want to use as an assessment tool.	x
Jazz chants	x One teacher uses these.	
Picture stories	x This is emphasized.	
Videos	x Die-casting, "Norma Rae"	
Vocab. developed from on-site responsibilities	x	x
Reading comprehension derived from family stories	x	
Simulations or role-plays	x	x
Computer-assisted instruction	No.	No
Modelling skills		x
Others	Choral work Games Newspapers - current events Work materials and tool samples (e.g. defective parts)	x Language experience charts, patient name chart Mystery

Hampden Papers, Inc./ I.L.I.	Boston City Hospital
No	x
No. (Rarely. Only when there is a group.)	x
x (in C.A.I. after students under stand the thought behind it)	x (practice: role-playing around prob.solving.pronouncing vocabulary
x (on an individual basis)	x
No	x (role-playing, case studies. dissections groups, debates)
No	No
No (individual now -tried in first year)	No
x (a lot)	No
x "Dangers in the workplace" video	x (science--human systems. "Eyes on the Prize" while doing math work
x (some, esp. when a worker "bids" in a new area)	x (yes, a lot)
No	No
No	x
X (budgeting, database, graphics, spreadsheets. Not C.A.I. Tools.)	No
x	x (with problem solving issues Paul will act out an example)
Computer tools: word processing Workbooks	Tutoring (Paul does a lot of this outside class) one or two field trips

TABLE C

INSTRUCTIONAL MATERIALS	Kennedy/ Quinsigamond	South Cove Manor/C.A.C.A.
Materials used Teacher made? Commercial?	Teacher-made materials are modelled on "English at Work--A Toolkit." Also use texts: e.g. "ESL for Action," "Speaking up at Work," idiom books, Regents grammar, and other generic trade books	Both, but primarily teacher-made
Print and non-print materials	Field-trips for the teacher in the factory, guided by students	x (charts, cuisenaire rods, drawings, diagrams)
Tactile	Products company makes, and defective parts Safety equipment: glasses and gloves	x
How materials are evaluated	Teachers evaluate curriculum units developed by teacher/ curriculum developer, to some extent	
Materials screened to be sure that they are based on adult subject matter	No formal process	
Workers choice over materials that they as individual learners use	No	X (Workers are very much encouraged to experience a variety of materials and methods, and to choose those which they find to work for them.)

Hampden Papers, Inc./ I.L.I.	Boston City Hospital
Maps, graphs, books Production tickets	Textbooks, worksheets (e.g. grammar worksheets), vocab. tests (medical terminol.) Elsa Auerbach's text.
Both	
Yes. Tape recorder for pronunciation. Computers, triangles, protractors. videotape	Newspaper and magazine articles for reading and analyzing writing
Yes.	health & safety, and rights on the job videos
	skeleton, muscular system model
By teacher on an ad-hoc basic	Paul evaluates. Advisory board could could play this role. Evaluated for adult subj. maytter, cultural sensitivity, readability, clarity and understandability. Not specifically screened for gender bias, but Paul says he would pick this up. Also screens out condescending mtrl
Yes, on an ad hoc basis	
Yes.	

STEPS IN FOLLOWING A CHEMICAL PRODUCTION TICKET

1) Find out the **name** of what you are making.
(Look at the **left** side of the ticket)

2) **Find out how much you will be making.**
(Look for the # of **tubs** in **top** section of ticket)

3) Figure out **what size mix tank** (**measured in gallons**) you need for the number of tubs you'll be making.
(1 Tub = 25 gallons)

4) **Find out the kind of mixer you need to use.**
(See **"Mixer"** in **top** section of ticket.)

5) **Follow directions IN ORDER. Pay attention to highlighted directions as you come to them!** Ask first if you have any questions.

6) Look at **1st ingredient**. Is it **dry** or **wet**?

7) If it is a **dry** ingredient,

   a) Go find it. Be sure to read the **whole** name!
   b) It will usually be in **50 gallon drums.**
   Each ingredient has a **different weight,** so 50 gallons of ingredient X will **not** weigh the same as 50 gallons of ingredient Y. **READ** the label to find out how many lbs. **net weight** are in each drum of the ingredient you need.
   c) Figure out how many **whole** drums you need.
   d) **If** you also need part of another drum, you will **need to measure out this part. You will need to** decide **which container** is **big enough** to hold that amount.
   e) **You will need to zero out the scale BEFORE** you weigh your ingredient, so you get the correct **net** weight.

8) If it is a **wet ingredient,**

   a) Go find it.
   b) If it is **water,** add it by **meter.**
   c) If it is **another liquid,** measure it using either the 1 or 2 liter **dipper.**
   d) Be sure to check that it is the right **temperature.**
   e) If the production ticket says to "**Weigh**" the liquid,
      1) Get an empty "dish"
      2) Zero out the scale
      3) Weigh the liquid in lbs.

9) Add the next ingredient, following the same methods.

STEPS IN FOLLOWING A CHEMICAL PRODUCTION TICKET, p.2

10) Follow mixing/wet out directions in order.

11) When all ingredients have been added in right order, and all directions for mixing have been followed, look at the bottom of the page to find the right strain wire to use, and strain the mix with that screen.

12) Turn over the production ticket and fill out the stamp on the back with five things:

- a) Your name
- b) The date
- c) The amount you made
- d) The temperature (measure with thermometer)
- e) The viscosity

  To measure viscosity, take a #2 Zahn Cup
  Stick it flush into the color
  Pull it out
  Hit your stop watch!
  When it's empty, hit stop watch again!
  The number of seconds it takes to empty is the viscosity.

13) Put a sign on the tank with four things:

- a) Production # (from upper left corner of ticket)
- b) Name of color you've made (from lower left corner of ticket)
- c) Date
- d) machine it is going to (from top of page)

14) Let sample settle out for about half an hour.

15) Look at top of production ticket to see which machine is making paper this color is to go on. Call that machine operator and have him send a sample of that paper down the chute to you.

16) Look at upper right corner of production ticket for right draw down wire to use and test color you have made on the correct paper with that draw down wire.

17) Send a sample up to the Quality Control (QC) Office

18) CLEAN ALL YOUR EQUIPMENT

Appendix D: Termination Study Questionnaires

Friction Materials, Inc.
Program Termination Questionnaire

Background

Friction Materials, Inc. (FMI) is closing in September 1991. The following questions are intended to get key players in the FMI workplace education program to reflect on the role their program played in trying to keep their company alive and competitive, how the program did or did not live up to its promise and why.

The first set of open-ended questions ask respondents to directly reflect on the goals of the FMI ESL program and how they were or were not implemented. The second set of questions ask respondents to reflect on what workers learned as a result of participating in the program.

In its 1988 report, "Workplace Basics: the Skills Employers Want", the American Society for Training and Development asserts that the employers it surveyed want workers to be competent in seven basic skills groups. The breadth of these job related basic skills underscores that workplace education entails far more than the traditional three R's. These categories guide the second set of questions for the FMI termination evaluation. Questionnaires are designed for managers, supervisor, learning provider, participating worker, and union representatives.

The categories are:
1. **Foundation** - knowing how to learn
2. **Competence** - reading writing and computation
3. **Communication** - listening and oral communication
4. **Adaptability** - creative thinking and problem solving
5. **Personal Management** - self esteem, goal setting, motivation, and personal and career development
6. **Group Effectiveness** - interpersonal skills, negotiation and teamwork
7. **Influence** - organizational effectiveness and leadership

Termination Study Questionnaire for FMI

(Adapted for managers, supervisors, learning provider representatives/program coordinator, participating workers, and union representatives)

Name: ____
Title:____
Date:____
Length of Time Affiliated with Program__________________________

1.) In retrospect, what were the goals of the ESL program? What were your hopes for it?
Explain____
____
____
____
____

2.) Did the goals fit with other changes taking place in the company?
Yes
No
Explain____
____
____
____
____

3.) Were the program goals fully implemented?
Yes
No
Explain____
____
____
____
____
____
____

Probe: major barriers--
- no release time;
- workers working other jobs;
- teaching staff ;
- lack of full management support;
- lack of understanding of role that education plays in the company's long term goal to become a quality-oriented "high production organization";
- conflict between fulfilling production quotas and supporting the company's education program;
- inadequate time line to bring about changes wanted by Ecklin;
- only partial commitment to quality awareness and SPC

- union role
- other

4.) What would you do differently, if you could do your program over again?. Please be specific and tell me why you make the suggestion you do.
Probe: major barriers--

- no release time;
- workers working other jobs;
- teaching staff;
- lack of full management support;
- lack of understanding of role that education plays in the company's long • • term goal to become a quality-oriented"high production organization";
- conflict between fulfilling production quotas and supporting the company's education program;
- inadequate time line to bring about changes wanted by Ecklin;
- only partial commitment to quality awareness and SPC
- union role
- other

Do you think that participation in your workplace education program has changed the following for workers at FMI?
Please circle **stayed the same**, **increased a little,** or **increased significantly**

1. **Foundation** - knowing how to learn

- Appreciation for the learning process
  stayed the same increased a little increased significantly

- Not afraid to ask questions about something I don't know
  stayed the same increased a little increased significantly

- Know where to go for information to answer my questions (to a book, a person, etc.)
  stayed the same increased a little increased significantly

2. **Competence** - reading ,writing and computation.

Math Skills:

- Do basic addition and subtraction
  stayed the same   increased a little   increased significantly

- Do basic multiplication and division
  stayed the same   increased a little   increased significantly

- Add and subtract simple fractions
  stayed the same   increased a little   increased significantly

- Work with decimals
  stayed the same   increased a little   increased significantly

- Figure simple percentages
  stayed the same   increased a little   increased significantly

- Read a ruler
  stayed the same   increased a little   increased significantly

3. **Communication** - listening and oral communication

- Understand directions
  stayed the same   increased a little   increased significantly

- Need less time in translation
  stayed the same   increased a little   increased significantly

- Listens to coworkers' questions
  stayed the same   increased a little   increased significantly

- Ask questions clearly
  stayed the same   increased a little   increased significantly

- Give presentations
  stayed the same   increased a little   increased significantly

4. **Adaptability** - creative thinking and problem solving

- Don't wait for someone else to tell them what to do. Take initiative.
  stayed the same   increased a little   increased significantly

- Think about new/better ways to do things at work
  stayed the same   increased a little   increased significantly

- Discover and apply new/better ways to do things at work
  stayed the same   increased a little   increased significantly

5. **Personal management** - self esteem, goal setting, motivation, and personal and career development

- Value opinions and contributions
  stayed the same increased a little increased significantly

- Offer opinions to others
  stayed the same increased a little increased significantly

- Plan ahead at work
  stayed the same increased a little increased significantly

- Comfortable working alone
  stayed the same increased a little increased significantly

6. **Group effectiveness** - interpersonal skills, negotiation and teamwork

- Work well with co-workers
  stayed the same increased a little increased significantly

- Developed a sense of team work and team identity
  stayed the same increased a little increased significantly

- Willing to negotiate personal needs and the needs of group with supervisor
  stayed the same increased a little increased significantly

- Supportive of others efforts to increase their skills
  stayed the same increased a little increased significantly

7. **Influence** - organizational effectiveness and leadership

- Understand what SPC is
  stayed the same increased a little increased significantly

- Understand the role that SPC plays in overall company strategy to improve production and sales
  stayed the same increased a little increased significantly

- Understand the relationship between the parts of the work process and the whole production process
  stayed the same increased a little increased significantly

- Understand the long term goals of FMI and the essential role that education plays in making those goals a reality
  stayed the same increased a little increased significantly

8. **Other job-specific tasks or skills**

Inspect parts (OR OTHER SKILL APPROPRIATE TO FMI)
stayed the same increased a little increased significantly

Spir-it, Inc.

Program Termination Questionnaire

Background

Spir-it terminated its ESL/ABE program in May 1991. The following questions are intended to get key players in the SPIR-IT workplace education program to reflect on why the program was terminated, and what could have prevented this event.

The first set of open-ended questions ask respondents to directly reflect on the goals of the Spir-it program and how they were or were not implemented. The second set of questions ask respondents to reflect on what workers learned as a result of participating in the program.

In its 1988 report, "Workplace Basics: the Skills Employers Want", the American Society for Training and Development asserts that the employers it surveyed want workers to be competent in seven basic skills groups. The breadth of these job related basic skills underscores that workplace education entails far more than the traditional three R's. These categories guide the second set of questions for the Spir-it termination evaluation. Questionnaires are designed for managers, supervisor, learning provider, and participating worker.

The categories are:
1. **Foundation** - knowing how to learn
2. **Competence** - reading writing and computation
3. **Communication** - listening and oral communication
4. **Adaptability** - creative thinking and problem solving
5. **Personal Management** - self esteem, goal setting, motivation, and personal and career development
6. **Group Effectiveness** - interpersonal skills, negotiation and teamwork
7. **Influence** - organizational effectiveness and leadership

Termination Study Questionnaire for Spir-it, Inc.

(Adapted for managers, supervisor, learning provider representative/program coordinator, and participating workers)

Name: ____
Title: ____
Date: ____
Length of Time Affiliated with Program ____________________________

1.) In retrospect, what were the goals of the ESL program? What were your hopes for it?
Explain ____

3.) Did the goals fit with other changes taking place in the company?
Yes
No
Explain ____

3.) Were the program goals fully implemented?
Yes
No
Explain ____

Probe: major barriers--
- no release time;
- workers working other jobs;
- teaching staff ;
- lack of full management support;
- lack of understanding of role that education plays in the company's long term goal to become a quality-oriented"high production organization";
- conflict between fulfilling production quotas and supporting the company's education program;
- only partial commitment to quality awareness and SPC
- other

4.) What would you do differently, if you could do your program over again?. Please be specific and tell me why you make the suggestion you do.
Probe: major barriers--

- no release time;
- workers working other jobs;
- teaching staff
- lack of full management support;
- lack of understanding of role that education plays in the company's long • • term goal to become a quality-oriented"high production organization";
- conflict between fulfilling production quotas and supporting the company's education program;
- other

Do you think that participation in your workplace education program has changed the following for workers at Spir-it?
Please circle **stayed the same**, **increased a little**, or **increased significantly**

1. **Foundation** - knowing how to learn
- Appreciation for the learning process
  stayed the same increased a little increased significantly

- Not afraid to ask questions about something I don't know
  stayed the same increased a little increased significantly

- Know where to go for information to answer my questions (to a book, a person, etc.)
  stayed the same increased a little increased significantly

2. **Competence** - reading ,writing and computation (Perception of aggregate learning)

Math Skills:

- Do basic addition and subtraction
  stayed the same increased a little increased significantly
- Do basic multiplication and division
  stayed the same increased a little increased significantly
- Add and subtract simple fractions
  stayed the same increased a little increased significantly
- Work with decimals
  stayed the same increased a little increased significantly
- Figure simple percentages
  stayed the same increased a little increased significantly
- Read a ruler
  stayed the same increased a little increased significantly

Reading:

- Read job instructions
  stayed the same increased a little increased significantly
- Understand what "data" is
  stayed the same increased a little increased significantly
- Understand what it means for a process to be "in control" or "out of control"
  stayed the same increased a little increased significantly
- Read graphs
  (Specify the different types of graphs that can be read)
  stayed the same increased a little increased significantly
- Read charts and grids
  stayed the same increased a little increased significantly

Writing Skills:

- Fill out forms/complete a job report
  stayed the same increased a little increased significantly
- Draw graphs

stayed the same increased a little increased significantly

- Write a paragraph
  stayed the same increased a little increased significantly

- Write an essay
  stayed the same increased a little increased significantly

3. **Communication** - listening and oral communication

- Understand directions
  stayed the same increased a little increased significantly

- Need less time in translation
  stayed the same increased a little increased significantly

- Listens to coworkers' questions
  stayed the same increased a little increased significantly

- Ask questions clearly
  stayed the same increased a little increased significantly

- Give presentations
  stayed the same increased a little increased significantly

4. **Adaptability** - creative thinking and problem solving

- Don't wait for someone else to tell them what to do. Take initiative.
  stayed the same increased a little increased significantly

- Think about new/better ways to do things at work
  stayed the same increased a little increased significantly

- Discover and apply new/better ways to do things at work
  stayed the same increased a little increased significantly

5. **Personal management** - self esteem, goal setting, motivation, and personal and career development

- Value opinions and contributions
  stayed the same increased a little increased significantly

- Offer opinions to others
  stayed the same increased a little increased significantly

- Plan ahead at work
  stayed the same increased a little increased significantly

- Comfortable working alone

stayed the same increased a little increased significantly

6. **Group effectiveness** - interpersonal skills, negotiation and teamwork

- Work well with co-workers
  stayed the same increased a little increased significantly

- Developed a sense of team work and team identity
  stayed the same increased a little increased significantly

- Willing to negotiate personal needs and the needs of group with supervisor
  stayed the same increased a little increased significantly

- Supportive of others efforts to increase their skills
  stayed the same increased a little increased significantly

7. **Influence** - organizational effectiveness and leadership

- Understand what SPC is
  stayed the same increased a little increased significantly

- Understand the role that SPC plays in overall company strategy to improve production and sales
  stayed the same increased a little increased significantly

- Understand the relationship between the parts of the work process and the whole production process
  stayed the same increased a little increased significantly

- Understand the long term goals of SPIR-IT and the essential role that education plays in making those goals a reality
  stayed the same increased a little increased significantly

8. **Other job-specific tasks or skills**

Inspect parts (OR OTHER SKILL APPROPRIATE TO SPIR-IT)
stayed the same increased a little increased significantly